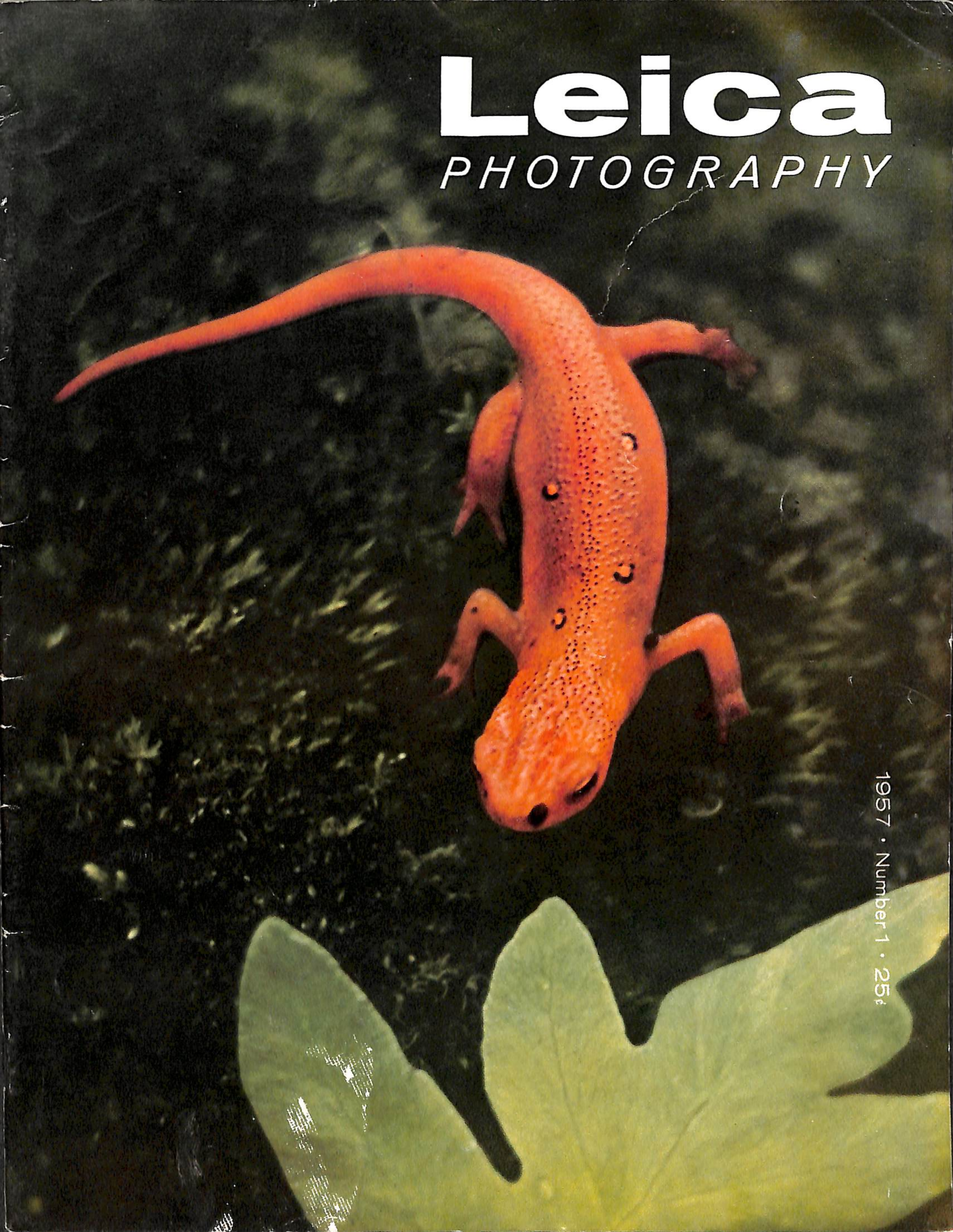
Leica
PHOTOGRAPHY



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Leica PHOTOGRAPHY

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The editors are happy to consider original articles on photography with the Leica and photographs taken with Leica cameras and lenses. All manuscripts and photographs should be accompanied by stamped, self-addressed return labels.

COVER

Gene Pyle

The cover photograph gives us a vivid view of nature untouched, demonstrating the unique action-close-up possibilities of the Leica, Visoflex Housing and Focusing Bellows. The photographer used newspaper to reflect more sunlight into the mossy area. Kodachrome film was exposed 1/25 second, the 135mm Hektor lens open to about f/4.5. The lens, adaptor ring, housing and bellows were combined with a IIIf Leica body.

◀ INSIDE COVER

Sabine Weiss

Sunset, Paris. IIIf, 50mm Summarit, 1/100 sec., f/4. See page 4.

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one-man show

SABINE WEISS, photojournalist

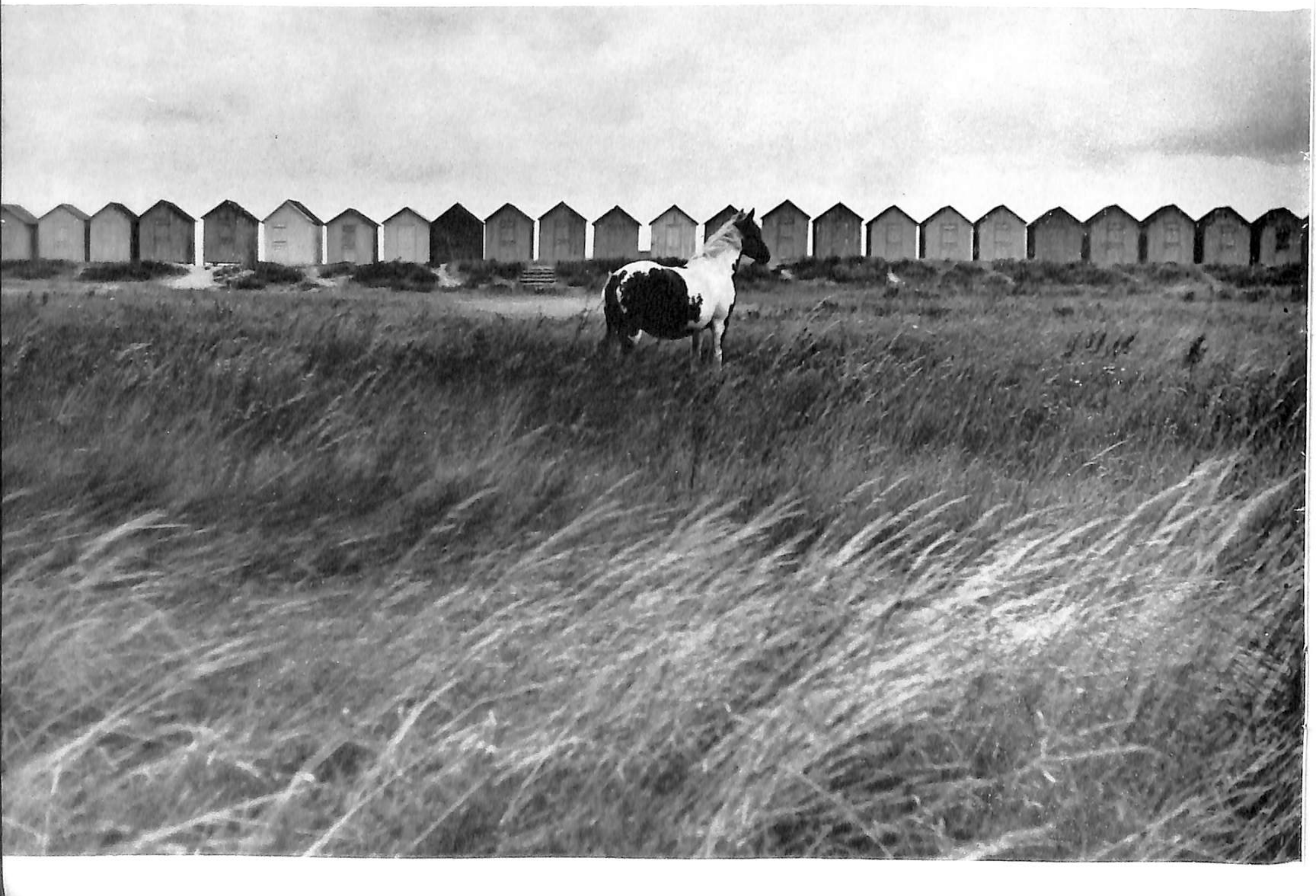
Appearing here from time to time: selections from the finest work of photographers in different fields.

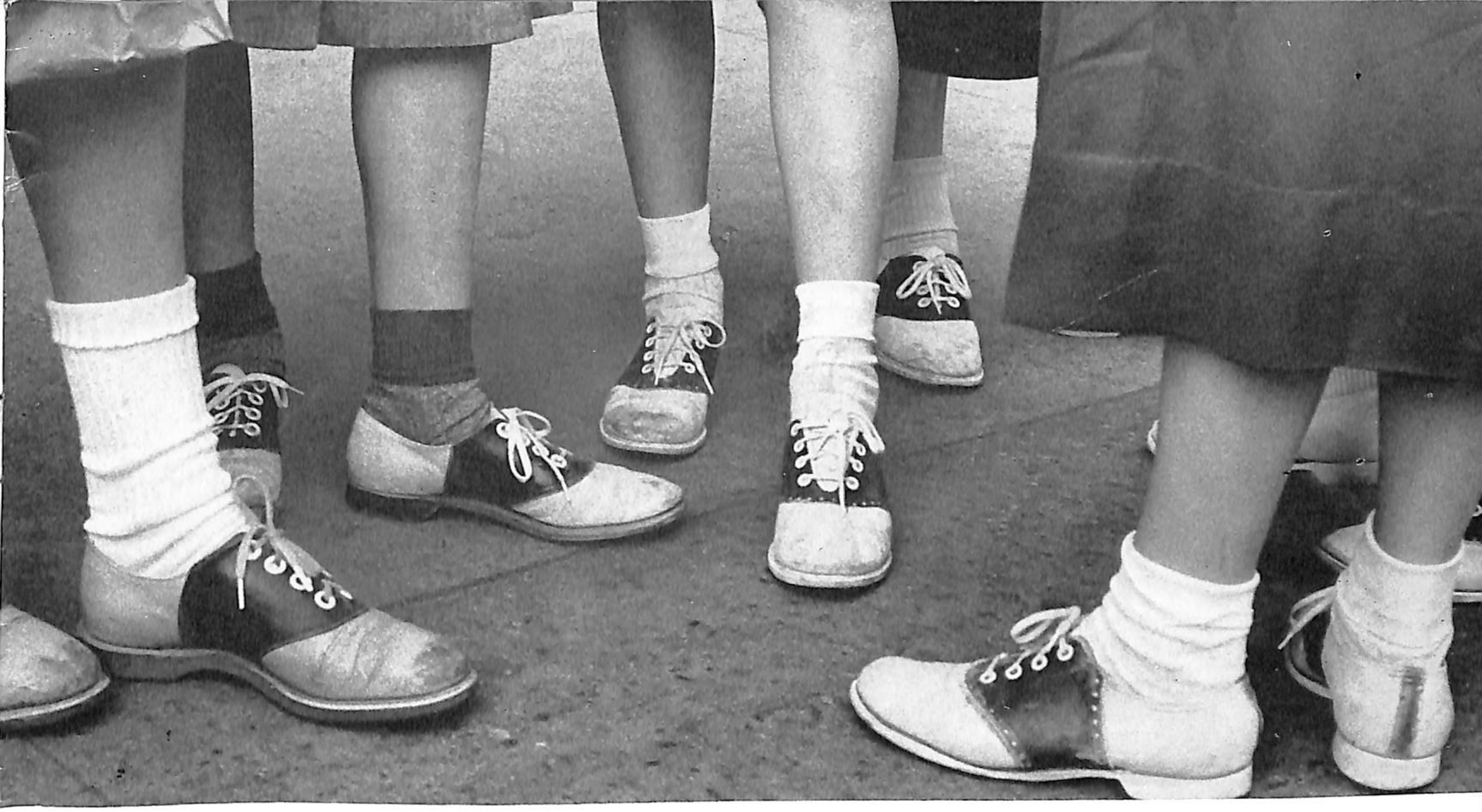
One of France's leading photographers is a sparkling-eyed, attractive young woman of 30 whose visual alertness is exceeded only by her ease and naturalness with people. Sabine Weiss arrived in Paris just after the Second World War from a country town in Switzerland. She brought to a circle of young poets and painters enthusiasm and earnestness about "seeing," a quality she found many an artist to be short of.

Seeing, to Sabine, is to be emotionally moved by the world that is visible. Her friends will tell you that her always-alert mind and eyes are sensitized to the subtleties and nuances of human activity. So it was natural that she came to love Paris and to make the city her home base. There, she married the American painter, Hugh Weiss, and when she was not off on an assignment for an American magazine, such as *Holiday* or *Vogue* or *Life,* or for the French *Paris Match,* they would go out together into the most fascinating city in the world. He would gather impressions for his own work; she would photograph.

A natural curiosity greatly motivates Sabine to photograph. She is not a specialist; indeed, the very

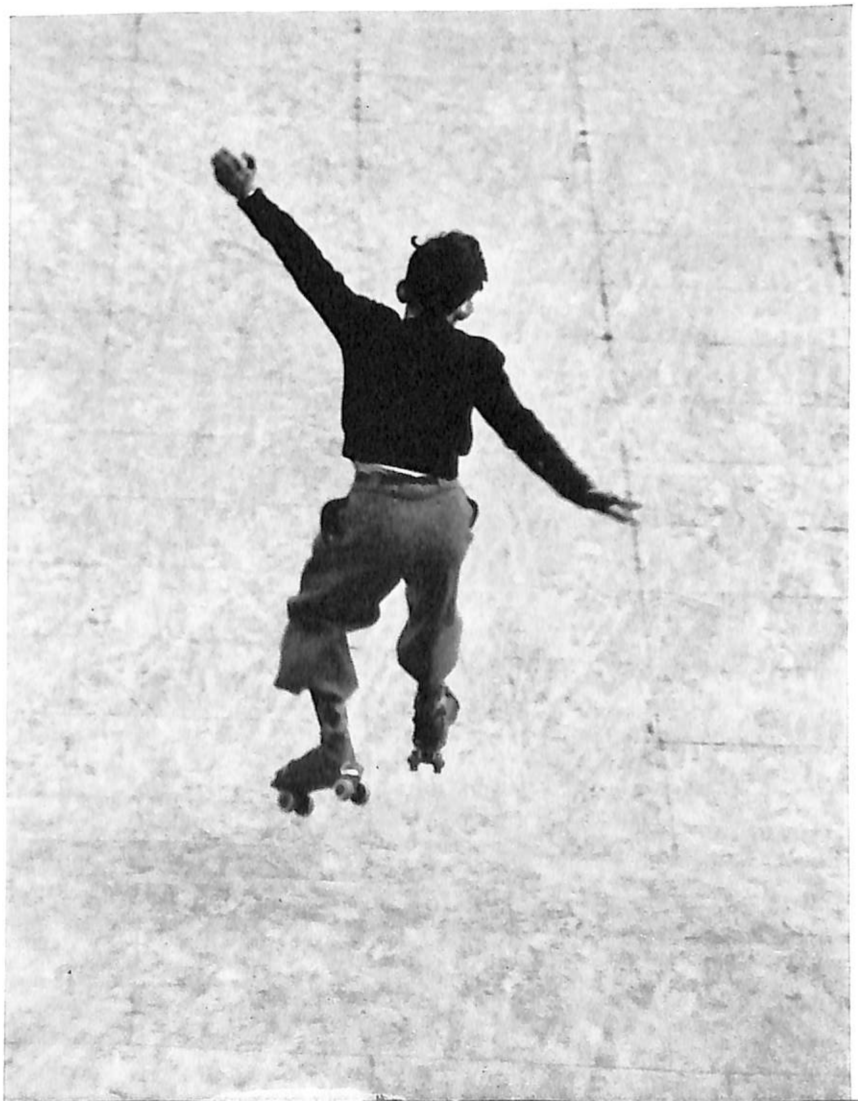
Winter on the Beach, Brittany, France. 50mm Summitar, 1/60 at f/4.





Saddle Shoes. From a story on impressions of America, for *The New York Times Magazine*. 50mm Summarit, 1/200, f/4.

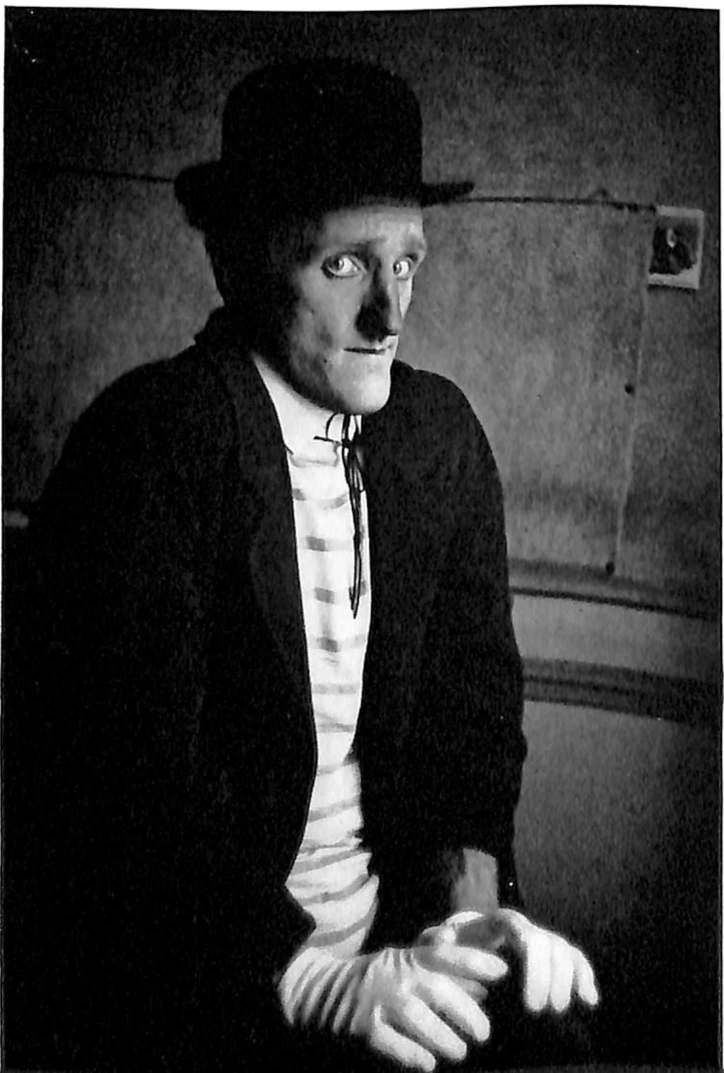
Skater, in the courtyard of the Museum of Modern Art, Paris. 135mm Hektor, 1/500 at f/8.



Fishing on the Seine, in a suburb of Paris. 50mm Summarit, 1/100 at f/4.

Cloudburst, Sienna. 50mm Summarit, 1/100 at f/1.5.

Clown, France. 50mm Summitar, 1/25 at f/2.

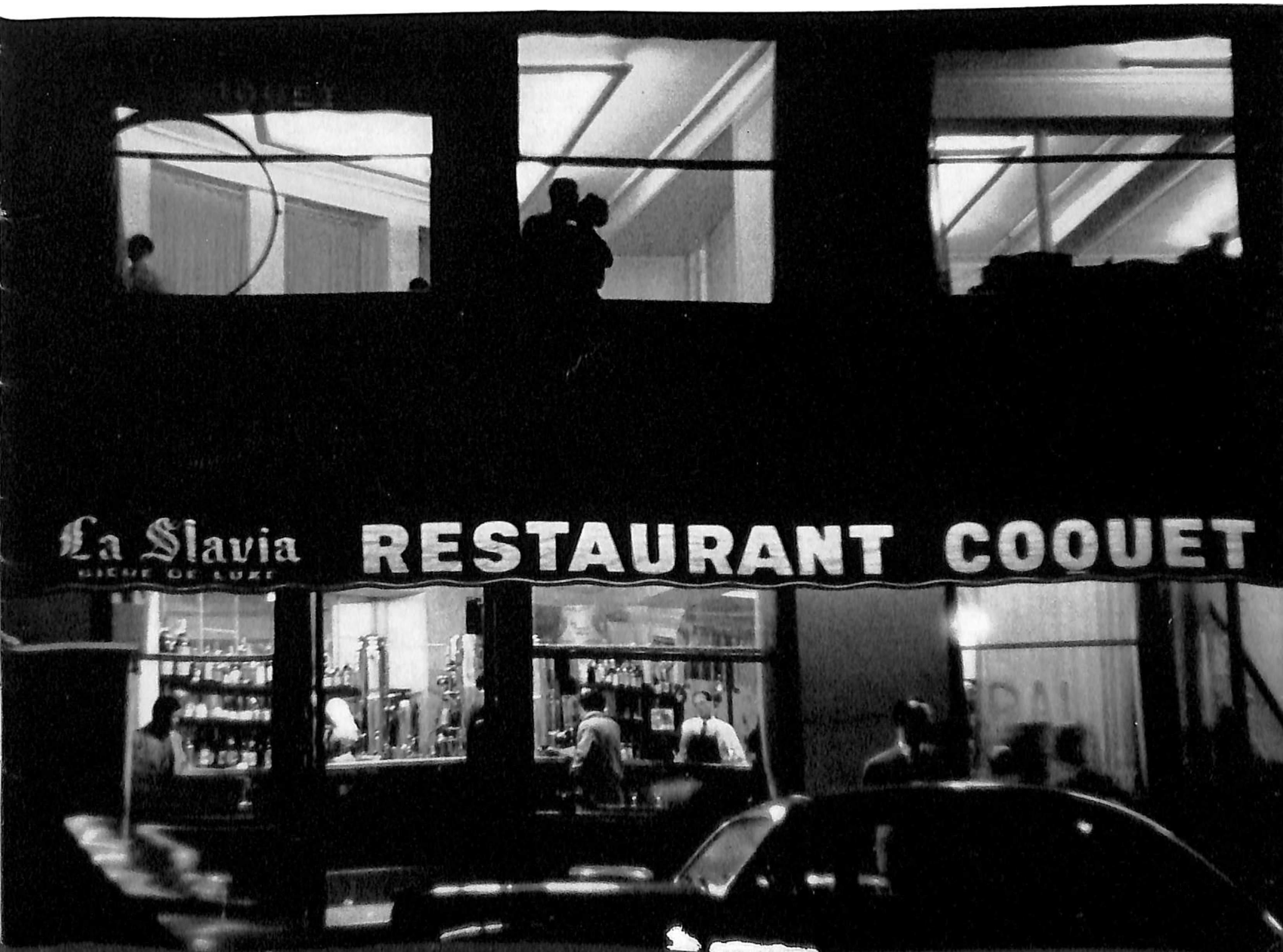


opposite tendency is what makes her personal spontaneity carry over into her work. This is the gist of her *feeling* about photography. Sabine Weiss says we must love to see things, and be excited by them. Creative spontaneity is the key to her success with the camera – in fact she claims she herself has yet to shrug off completely the restrictions placed on her own seeing by the rigorous "art photography" education and studio training she received more than ten years ago.

Her feelings or ideas are not expressed through conventional tricks of the camera or through studied effects and compositions. These are qualities reserved for the critic who feels he must convey an idea of what he sees in conventional descriptive terms. Instead, Sabine has rid herself of the need to do technique exercises because her first (and final) interest is in the world and events around her. When she uses a Telyt or long-focus lens on her Leica it is not because she likes the effect, *per se,* but because that particular lens will give her the particular picture that moved her under the circumstances. The important thing is to establish a direct contact between the subject and the eye; the camera must be as flexible and versatile as the subject matter and the photographer's imagination.

If there's any advice to the amateur from Sabine Weiss it's mostly in her photographs and what they mean. In a few words it is that we should not look so much for new techniques as for new, personal vision. If you get excited by these photographs by Sabine, as we do, that should prove she's right.

In Montmartre, Paris. 50mm Summitar, 1/10 at f/2.



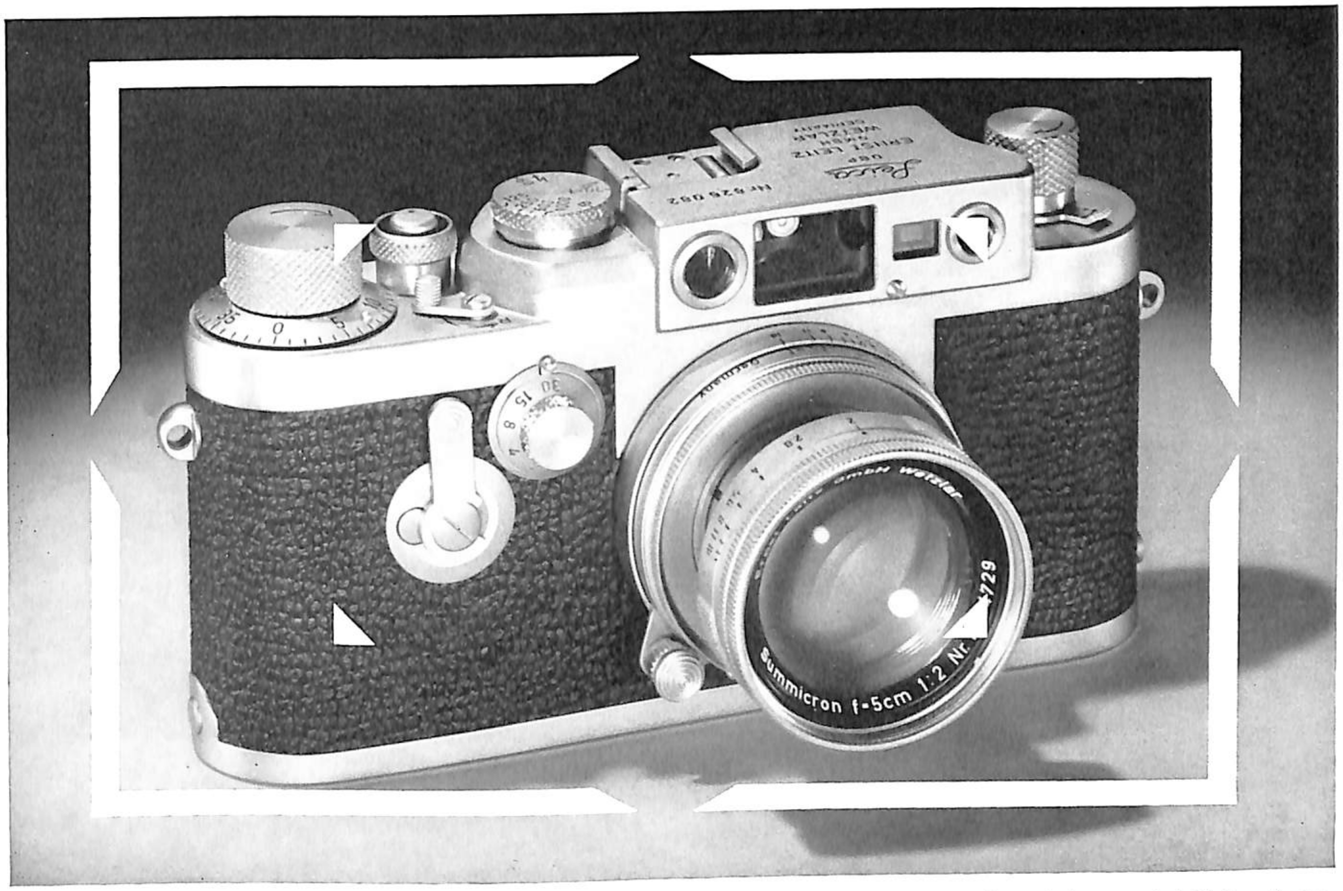
one-man show *(contd.)*

Horse in High Spirits, 135mm Hektor, 1/100 at f/5.6.

War Games, with chair barricades, in park in Sacre Coeur, Paris. 50mm Summitar, 1/50 at f/2.

IIIg...newest of the classic Leicas

redesigned viewfinder heads list of improvements



NEW LEICA IIIg, as if seen through its own bright-line finder. Outer frame is for 50 mm; inner corners for 85 and 90mm lenses.

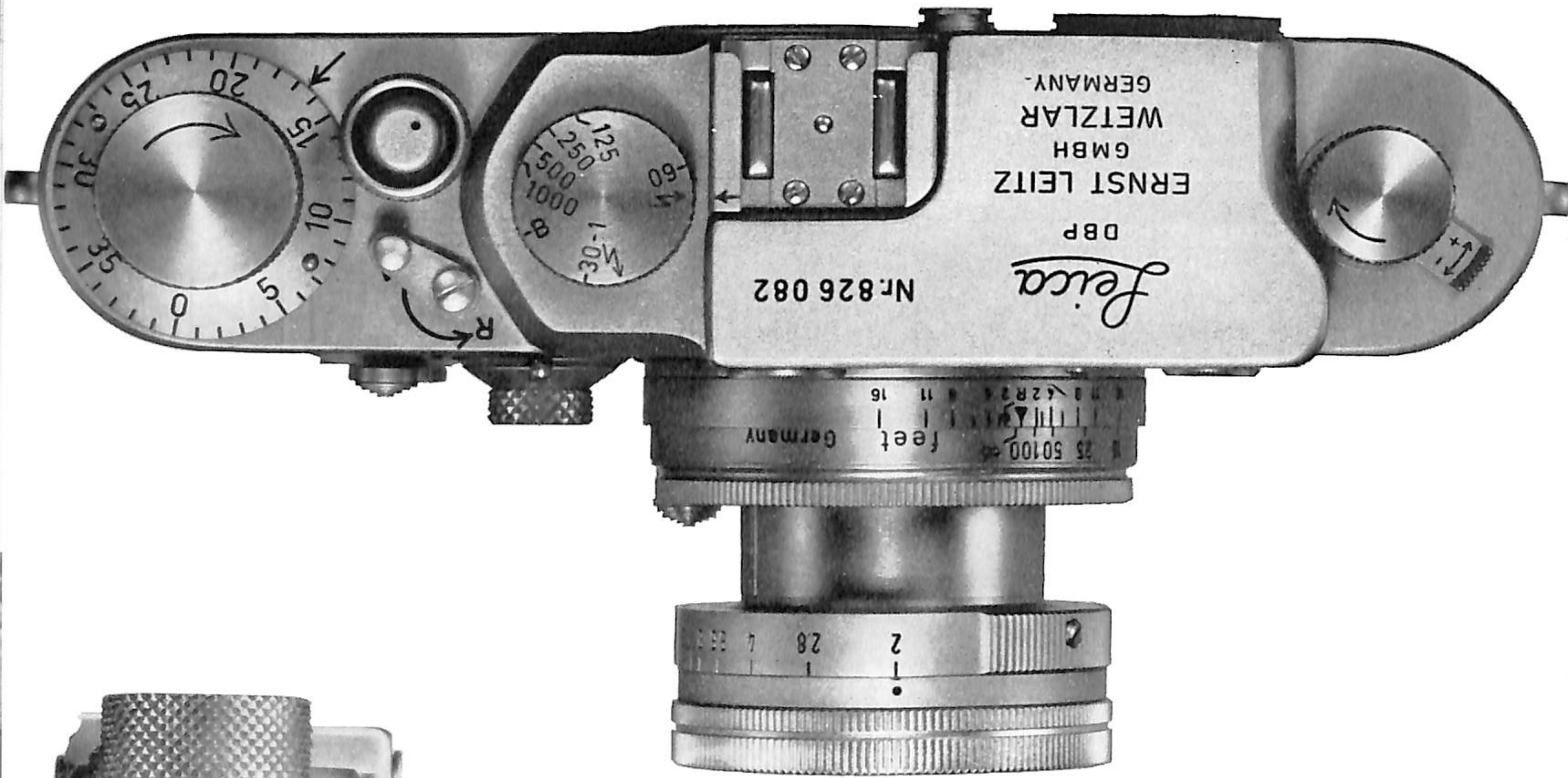
Each new Leica model, with the exception of the Leica M-3, has been an evolutionary step from the original and, by now, classic design of Oskar Barnack. Only when Leitz designers have been sure that changes would contribute to the final goal of better pictures, has the camera been altered. With this in mind, the announcement of the new Leica IIIg (replacing the IIIf) is an exciting event.

new viewfinder

The biggest advance in the IIIg is its new viewfinder. The large (.7x lifesize) image has superimposed on it a bright-line frame outlining the field of 50mm lenses. Within the 50mm field, four bright triangles show the corners of the field of 90mm lenses. Incorporated in the new viewfinder is automatic parallax correction through the entire focusing range of the lenses for both 50mm and 90mm frame indicators.

Another feature of the new viewfinder is its freedom from "eye parallax." That is, if you do not look directly through the center of the finder when shooting fast, for example, you will still frame accurately.

As in the IIIf, the rangefinder of the new IIIg is separate from the viewfinder, but its eyepiece is located right next to the viewfinder eyepiece. The rangefinder image is magnified 1.5x for critical accuracy in focusing. The rangefinder optics can be focused on near or distant objects as well as be accommodated to your own individual eyesight.



automatic flash synchronization

An outstanding addition to the IIIg is its automatic flash synchronization. Like the M-3, it needs no special synchro-dial setting to change the "synch" timing when you change shutter speeds. When you reset the shutter speed the flash contact points are reset automatically for proper synchronization.

shutter speeds

Shutter speeds on the IIIg are designed to correlate exactly with diaphragm settings; each step, up or down, gives one-half or twice the exposure, as does each step on the aperture scale.

The fast-speed dial on top of the camera gives speeds of 1/1000, 1/500, 1/250, 1/125, 1/60, 1/30 second and "Bulb." The slow speed dial, on the front of the camera, gives 1/30, 1/15, ⅛, ¼, ½, 1 second and "Time."

lenses

The new IIIg has the same standard threaded lens flange as the IIIf and previous Leicas with interchangeable lenses. The same lenses now available for such Leicas will be supplied for the new camera. A new screw-mounting 50mm Elmar f/2.8 lens will be available soon in limited quantities.

electronic flash

On the fast-speed dial there are two extra shutter settings marked in red and black for use with zero-delay electronic flash units or five-millisecond delay bulbs such as the SF and M2. These markings are located next to the 1/60th and 1/30th settings. Both may be used for electronic flash; five-millisecond delay bulbs work only at red arrow setting next to 1/30th.

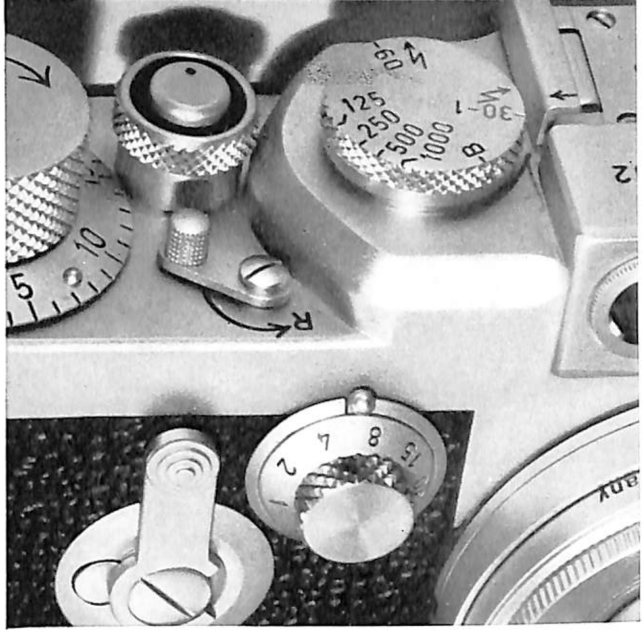
film exposure index reminder

The film exposure index reminder has been moved from the winding knob to the back of the IIIg housing. It is calibrated for both ASA and DIN ratings, and can be set as high as 1000 ASA. The winding knob and self-timer, rewind knob and exposure counter are the same on the IIIg as on the IIIf.

In overall looks, the IIIg is quite similar to the IIIf. However, the top section of the body is somewhat higher in the IIIg. The Leicavit rapid winder fits the IIIg without alteration. Close-up devices like the SOOKY and Focoslide will be available for the IIIg later in the year.

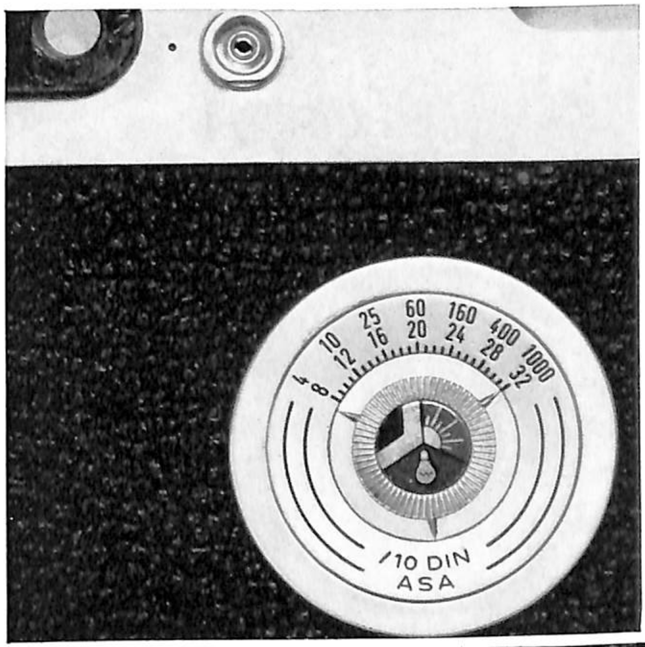
There will not be a model IIg to replace the discontinued IIf camera, but production of the If will continue. No conversion of previous screw-threaded Leica models to a IIIg is possible.

Price of the IIIg with collapsible 50mm Summicron f/2 lens is $342.00. With a 50mm Elmar f/3.5 lens, the price is $244.50.



SHUTTER SPEEDS correlate with f-stops. Standard and electronic flash synchronization is automatic, requires no special dials.

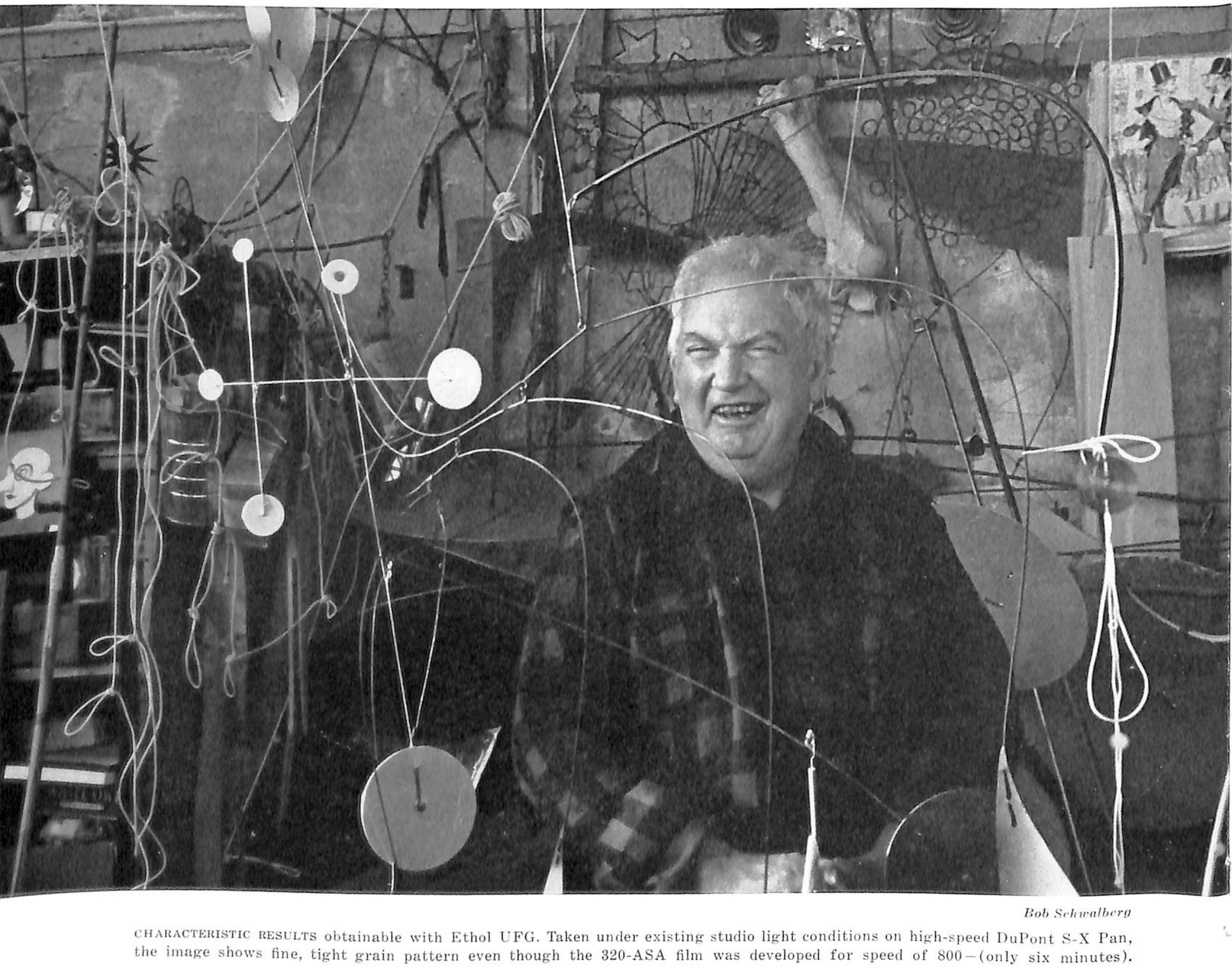
EXPOSURE INDEX reminder dial is now on back of camera, includes speeds from 4 to 1000 ASA, daylight, tungsten, color and b-and-w.



LEICAVIT rapid winder fits the IIIg without alteration. Close-up and other accessories will be available later this year.

report on Ethol UFG developer / *Ralph Carroll*

finer grain faster?—here's a run-down



Bob Schwalberg

CHARACTERISTIC RESULTS obtainable with Ethol UFG. Taken under existing studio light conditions on high-speed DuPont S-X Pan, the image shows fine, tight grain pattern even though the 320-ASA film was developed for speed of 800—(only six minutes).

A new fine-grain developer that is being used by many professional 35mm men to meet tight deadlines and still produce professional negative and print quality, may be *your* key to streamlined 35mm film processing. And if you secretly long for those good old days when you kept a single bottle of "soup" for all your negatives, remember the name, Ethol UFG (Ultra-Fine Grain).

Ethol UFG is a high-quality, versatile, and dependable fine-grain formula. It develops film in less time than is required for other fine-grain formulas to get started. More important, UFG is an excellent all-around performer, producing good negatives with nearly any black-and-white film, and top-quality results with most.

high-speed films

Possibly the best way to explore UFG performance with super-speed films like S-X Pan, Tri-X, and HPS, is to compare it with the available-light champions, Promicrol and Microphen.

Consistent with good negative quality and reasonably fine grain, the highest practical exposure indexes for any of these high-speed films lie somewhere between 650 and 1000 (ASA), when developed in Promicrol, Microphen, or UFG. The UFG negatives are comparable to the others in shadow density, highlight density and grain, but each of these developers produces its own brand of graininess. The sharpest, UFG; most diffuse, Microphen. But there are two points in favor of UFG: (1) lower fog level, which improves rendering of low-contrast shadow detail, (2) short development time. The average time for development with UFG for fast films exposed at 650 to 1000 is half or less than half the time used by Promicrol or Microphen.

Above the 1000 index, you cannot get very good negative quality with any of these films or developers, except under unusually favorable circumstances. When development is forced to about 2000, all three formulas normally give poor negatives. At 4000, there is little doubt that the Microphen negatives are *least bad,* while Promicrol and UFG tie for worst-negative honors.

At exposure indexes of 400 or 500, the graininess of high-speed films developed in Microphen or Promicrol is not much less than at 650-1000 performances —unless the negatives are excessively dense. In this case, the 400-500 negatives are even more grainy. Furthermore, neither of these soft-working developers can be cut back very far in processing time before the inherently flat high-speed emulsions begin to lose a critical amount of contrast. UFG is able to do this (probably because of its very low fog level). Its performance at 400-500 wins on both grain and gradation.

So, when using 650-1000 exposure indexes, UFG holds its own with Promicrol and Microphen. Relative merit seems to be a matter of personal preference. For extreme forcing, neither UFG nor Promicrol do quite as well as Microphen. With 400-500 exposures both Promicrol and Microphen are less effective than UFG.

medium-speed films

UFG is unquestionably one of the finest developers for medium-speed films. Most developers which yield finer grain do so by dissolving some of the developed silver to produce pseudo-fine-grain effect. Or else they fail to develop all of the exposed latent image, always involving some loss of effective emulsion speed.

With every medium-speed film put through UFG, the combination of fine grain, tight grain structure, and low fog level, produced sharp, fine-grain negatives of excellent gradation, particularly within the darker picture areas.

MEDIUM SPEED film (Plus-X) developed in Ethol UFG yields excellent gradation for a subject with so much contrast.

Fred L. Tonne, Milwaukee Journal

EXPOSURE AND DEVELOPMENT–ETHOL UFG

HIGH-SPEED FILMS	SPEED*	DEVELOPMENT†	SPEED*	DEVELOPMENT†
DuPont S-X Pan	400-500	3 to 4	800-1000	6 to 8
Ilford HPS	400-500	4 to 5	800-1000	7 to 9
Kodak Tri-X	400-500	3 to 4	800-1000	6 to 8
MEDIUM SPEED FILMS				
Adox KB-21	100-160	4 to 5	200-320	6 to 8
Ansco Supreme	100-160	4 to 5	200-320	6 to 8
Ilford FP 3	100-160	4 to 5	200-320	6 to 8
Kodak Plus-X	160-200	4 to 5	320-400	6 to 8
THIN-EMULSION FILMS				
Adox KB-14	16-25	2 to 3	–	–
Adox KB-17	40-64	3 to 4	80-125	4 to 6
Kodak Panatomic-X	40-64	3 to 4	80-125	4 to 6

*Approximate effective film speed for use with ASA-calibrated exposure meters.
†Times in minutes, at 70° F., with a minimum of 10 seconds agitation per minute. Development times for emergency forcing of known underexposures on high-speed films should not exceed 12 or 13 minutes because of extreme high-contrast results.
NOTE: Ilford Pan-F is omitted due to insufficient time to test this new material.

Outdoor exposures developed normally in UFG should be based upon a speed rating 2 or 2½ times higher than the manufacturer's recommended speed index. You can expose most films in this group at even higher ratings when necessary, if you extend the UFG development slightly. Kodak Plus-X, which is a "fast-type medium-speed film," can be rated safely as high as 400.

thin-emulsion films

Treatment of thin-emulsion films with UFG does not match the optimum quality you get when these high-acutance films are accurately exposed and carefully processed in non-fine-grain compensating developers like FR X-22 or Neofin. But with films like Adox KB-17 and Panatomic-X, results with UFG come so close to this optimal quality that some photographers cannot tell the difference. Others are willing to sacrifice some small degree of acutance to get the several advantages offered by UFG.

The first of these advantages is finer grain. Big enlargements of negatives with large medium-gray areas will often benefit by an exchange of some contour sharpness for finer grain. Another UFG advantage is exposure and development latitude. Both of these are appreciably increased by UFG fine-grain development. Still another is higher effective speed ratings. Many users report good results with UFG development of KB-17 and Panatomic-X exposed in the neighborhood of 100.

In the case of slower, high-contrast, thin-emulsion films like KB-14, Afga Isopan FF, and Ilford Pan F (which have even thinner emulsions and/or contain fewer silver salts than the KB-17 and Panatomic-X films), development in anything but a non-fine-grain compensating formula is a great waste of potential image quality. Strictly as an emergency procedure, however, a two- to three-minute UFG development will usually give acceptable negatives. Incidentally, when treating extra-thin-emulsion films in UFG it is far better to err somewhat in the direction of overdevelopment rather than the other way.

time-temperature adjustment–Ethol UFG

TEMPERATURE, DEGREES FAHRENHEIT:	55	60	65	70	75	80	85	90
ADJUSTMENT FACTOR:	2.67	2	1.34	1	0.67	0.56	0.45	0.33

Multiply normal developing time (given in table at left) by the appropriate factor listed above. This table is sufficiently accurate for most purposes, but best results are obtained at temperature of 70° F.

time, temperature and agitation

You may have noted in the processing chart *(above left)* that UFG development times are short. Short processing times call for accurate timing. A 30-second delay in removing film from a 12-minute developer would be only a 4 per cent increase of the total time; with a three minute UFG development it represents 16 per cent overdevelopment. This may or may not prove serious—but don't take the chance. At the start of a short development period, flood the entire film with developer as fast as possible. It is best to plunge the loaded developing reel into a prefilled tank of developer, rather than to fill the tank slowly.

The shorter the processing time, the greater the risk of uneven development, and so, the greater the need for effective agitation. When development is to last less than three minutes, agitate *continuously*. In any case give no less than ten seconds of vigorous agitation per minute, starting as soon as the film enters the developer.

The recommended temperature for UFG is 70° F. All processing recommendations are based upon this figure. Stick to it when you can, but remember that UFG is panthermic. You can use it within a temperature range of 55° to 90° F., with appropriate adjustment of the developing time. See the small time-temperature conversion chart above.

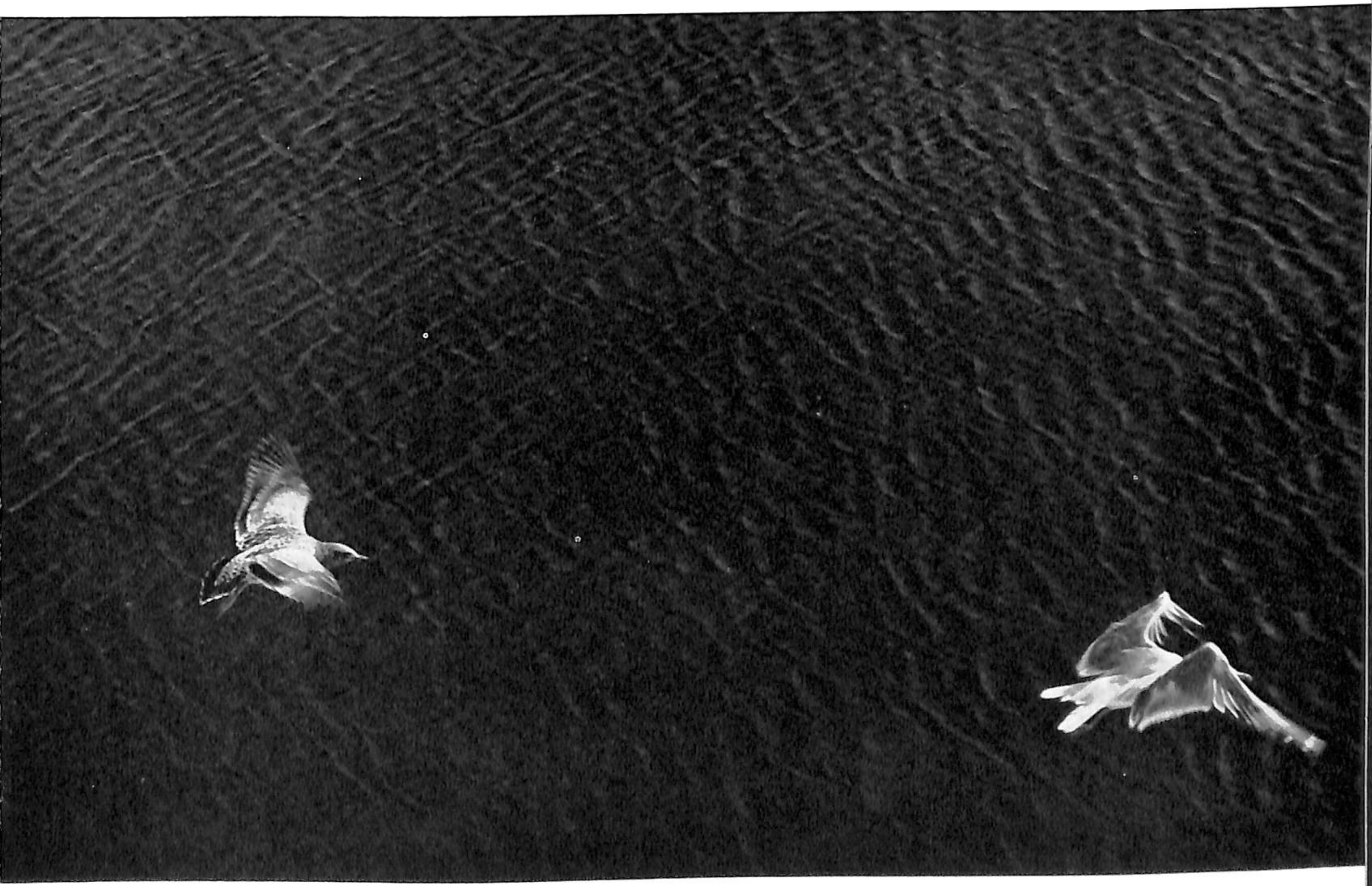
keeping qualities

Another UFG characteristic is its exceptionally long shelf-life. Stored in stoppered, brown bottles, the developer will last for months. Its tank-life is also very good. The useful life of UFG can be exploited further by using the replenisher made available. One quart each of developer and replenisher sets you up to process about sixty rolls of film. UFG replenisher is highly effective; little or no increase in developing times seems necessary over the life of a quart unit.

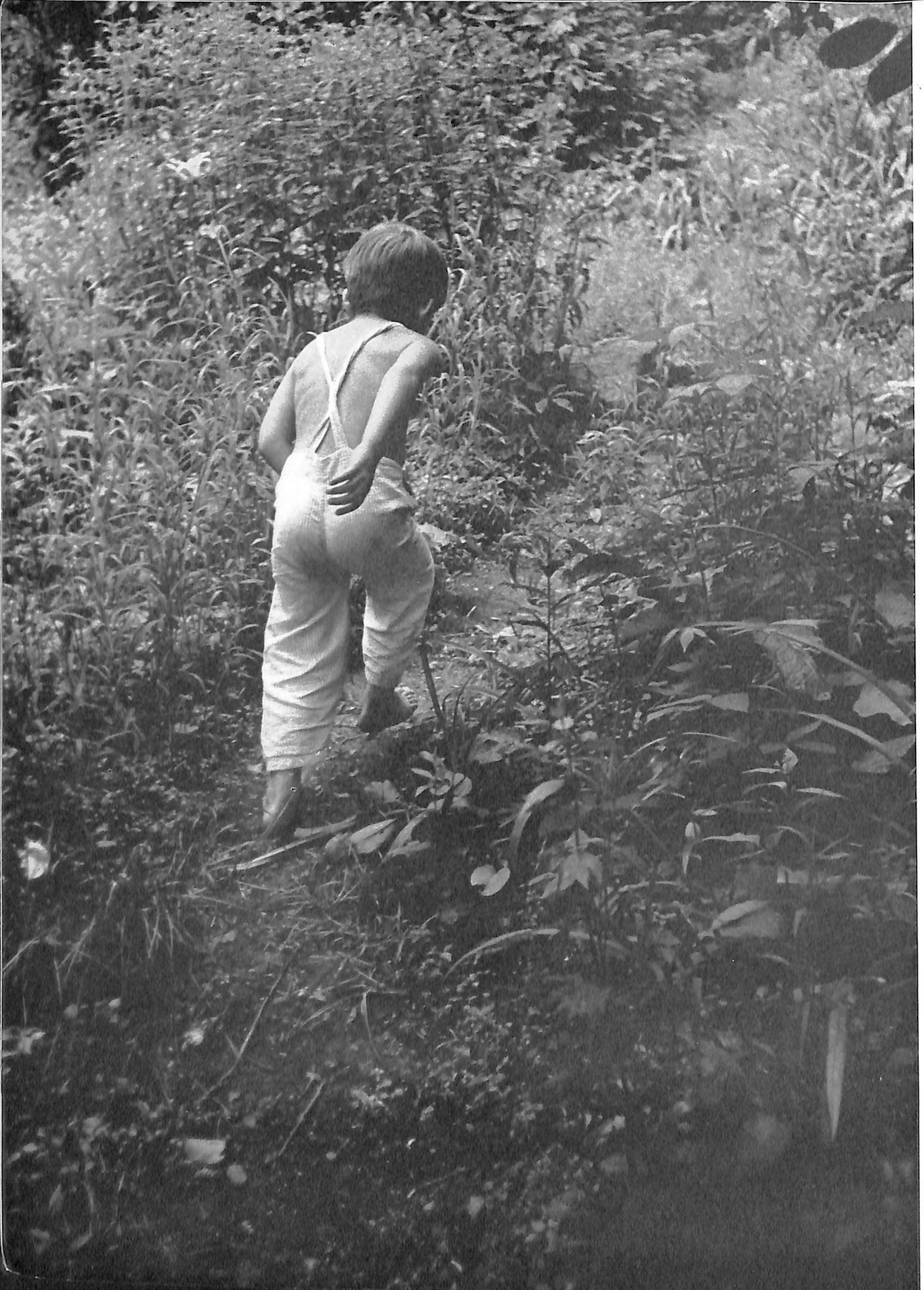
Prices and data for Ethol UFG are available from the manufacturer—Plymouth Products Co., Inc., 441 Plymouth Court, Chicago 5, Illinois.

Leica portfolio

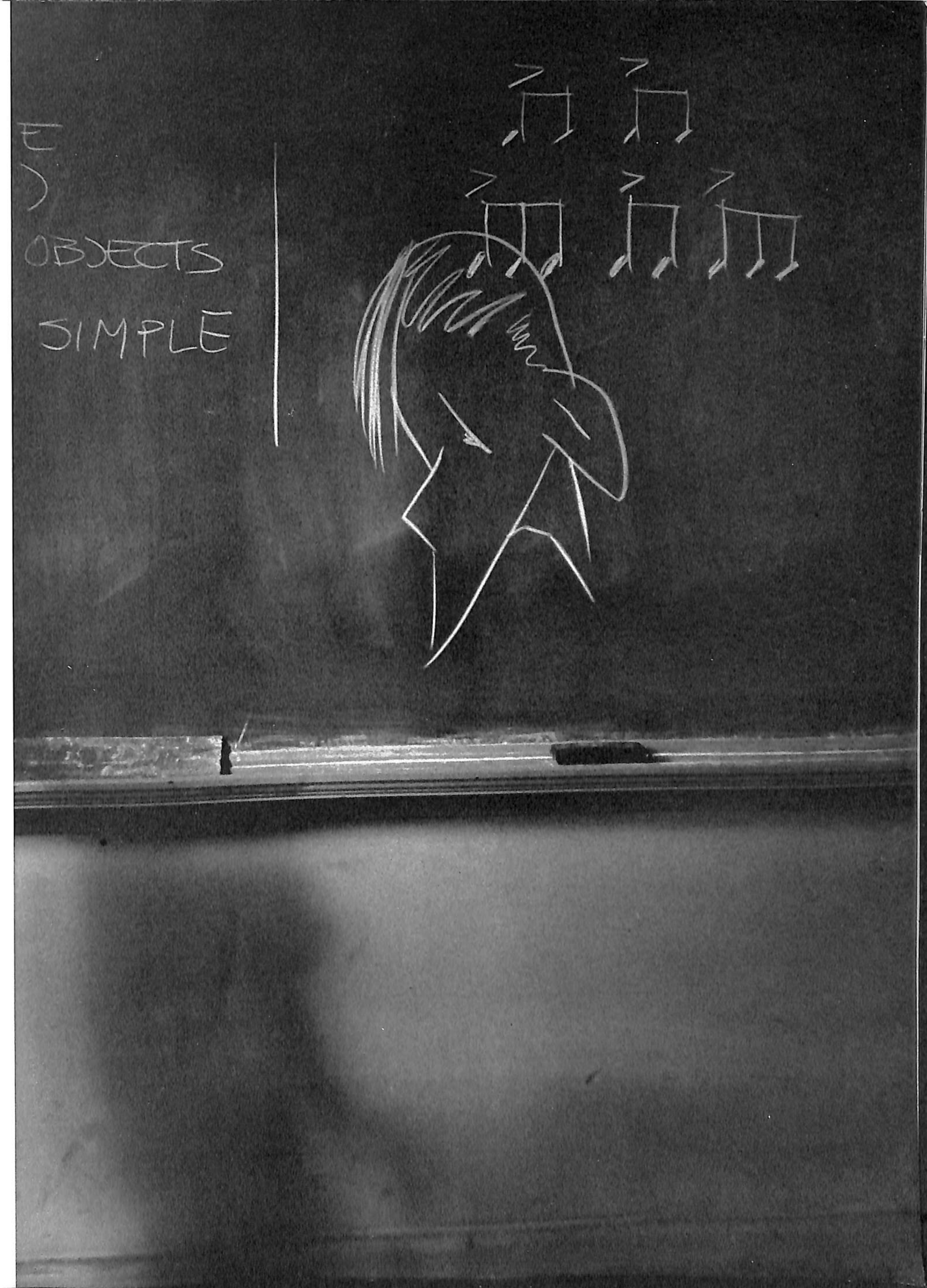
Presenting four examples of the many outstanding contributions made to photography by Leica owners in all parts of the world.



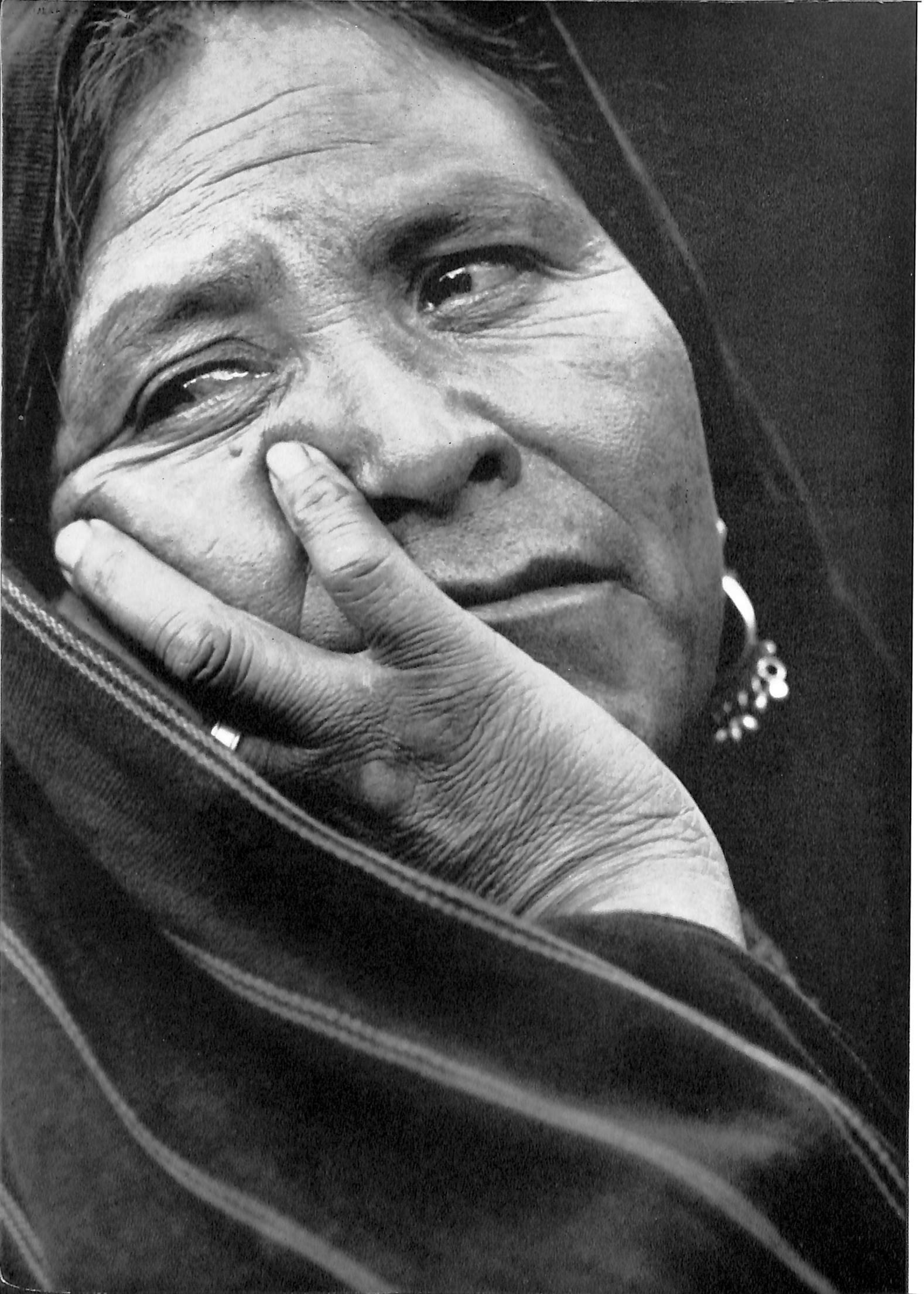
Clyde Hare, Pittsburgh. Birds in flight, Vancouver, British Columbia. IIIf, 50mm Summarit; 1/250 at f/8.



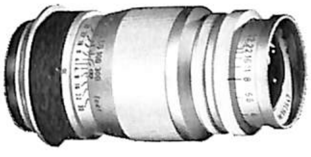
Hugh Bell, New York. Little boy on his own. IIIf, 50mm Summicron; 1/100 at f/5.6.



James H. Karales, Croton, N.Y. Classroom caricature, Ohio University. IIIf, 50mm Summicron, 1/25 at f/4.



Helen C. Manzer, New York, N.Y. Woman of Mexico. IIIf, 135mm Hektor with Visoflex and bellows. From a Kodachrome transparency—*see page 26.*



HERE ARE YOUR LEICA LENSES:

the "medium longs"

This is the third in a series of articles on the Leica lenses, presented for a better understanding of their variety and versatility within the Leica System. Emphasis is on practical applications to general picture-taking, rather than on technicalities.

Choosing a lens for a picture rather than forcing every scene into the format of a single lens proves you have mastered a versatile approach to photography. Such an approach is natural with the Leica because one of the important advantages of the Leica System is its optical versatility, a facet of 35mm photography that encourages the photographer to put his personality first.

The first two articles in this series introduced you to the lenses that span wide fields of view: the normal focal lengths (50mm) and the wide-angle lenses (28mm and 35mm). This article deals with the medium-long focal lengths available to the Leica owner. These lenses, because their focal lengths of 85mm or 90mm are nearly twice that of the normal lens, will render the same subject at the same distance nearly twice as large. This optical characteristic translates itself nicely into picture-taking advantages.

getting close without moving in

The most obvious advantage of the longer lens is that you can fill your picture area with an object from farther away than is possible with a shorter lens. This is especially helpful when circumstances prevent you from getting closer to the subject. This occurs more often than you might imagine, for example: when you photograph an event from a spectator's seat or in a crowd; when obstructions prevent you from moving closer to the subject, such as at the zoo; when using a normal lens to fill the frame with a specified area would bring you closer to the subject than its minimum focusing range permits.

The pictorial results of using longer lenses, though more subtle to appreciate, are just as important as the working advantages. When you understand these consequences in terms of any kind of subject or scene, you are well on the way to being not only a master of the camera but a master of the photographic medium as well. What are these pictorial consequences?

controlling perspective

We know that focal length controls the size of the image on the film. That is, a 90mm lens will give an image about 1.8 times the size of that produced by a 50mm lens of the same subject at the same distance. But camera-to-subject distance controls another effect—perspective. For instance: imagine two trees of the same size, one near the camera, the other in the distance. In a photograph they form different sized images, the nearer tree appearing larger, the farther tree smaller. Let's assume we use a 50mm lens to begin with.

Now, suppose that the distant tree appears too insignificant to make a pleasing composition in the 50mm shot. You want to make it look larger in relation to the foreground tree. How can you keep the image of the foreground tree the same size while making the image of the distant tree larger in the same picture? That is, how can you control the per-

facts about Leica 85mm and 90mm lenses

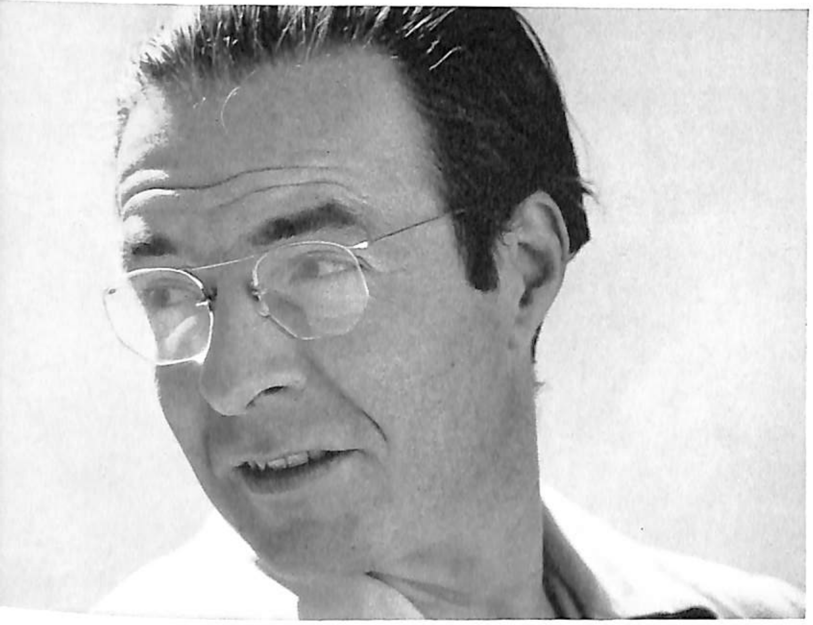
	85MM SUMMAREX	90MM ELMAR
CONSTRUCTION	symmetrical derivative	triplet type
ELEMENTS	7	4
MAXIMUM APERTURE	f/1.5	f/4
MINIMUM APERTURE	f/16	f/32
ANGLE OF VIEW*	28°	27°
MOUNT TYPE	rigid	rigid/collapsible[2]
FOCUSING PRINCIPLE	rotating	rotating/parallel[3]
CLICK STOPS	yes	no/yes[3]
RANGEFINDER COUPLING	yes	yes
FLANGE DIAMETER	59.8mm.	36mm.[1]/41.9mm.[2]
WEIGHT	21 oz.	7 oz[1]/9.5 oz[2]/12 oz[2,3]
MINIMUM FOCUS	5 feet	3½ feet

*Figure denotes angle across diagonal of picture format

[1] With standard screw mount

[2] With bayonet mount for M-3 camera

[3] Collapsible-type mount



Lew Tilley, Colorado Springs.

PORTRAITS with typical 35mm spontaneity can also be lifelike in facial proportions when long-focus lenses are used.

spective? The answer in this case is to use a longer focal-length lens and change the camera position. For instance, using the 90mm lens mentioned above would give you a 1.8 x increase in the image size of both trees. But by moving back from the foreground tree to about twice your original distance from it, you will keep its image size about the same with the 90mm lens as it was with the 50mm lens. If you were 20 feet away for the 50mm shot, you would move back to 36 feet. You would add 16 feet to your overall camera-to-subject distance.

Now let's assume that your background tree was 160 feet away in the first shot. The same extra 16 feet which increased the foreground-subject distance 80% would increase the camera-to- (background) subject distance only 10%. Thus the 90mm lens, in effect, "pulls in" the background, making it larger in relation to the foreground—in this case, about 80% larger than it would normally appear.

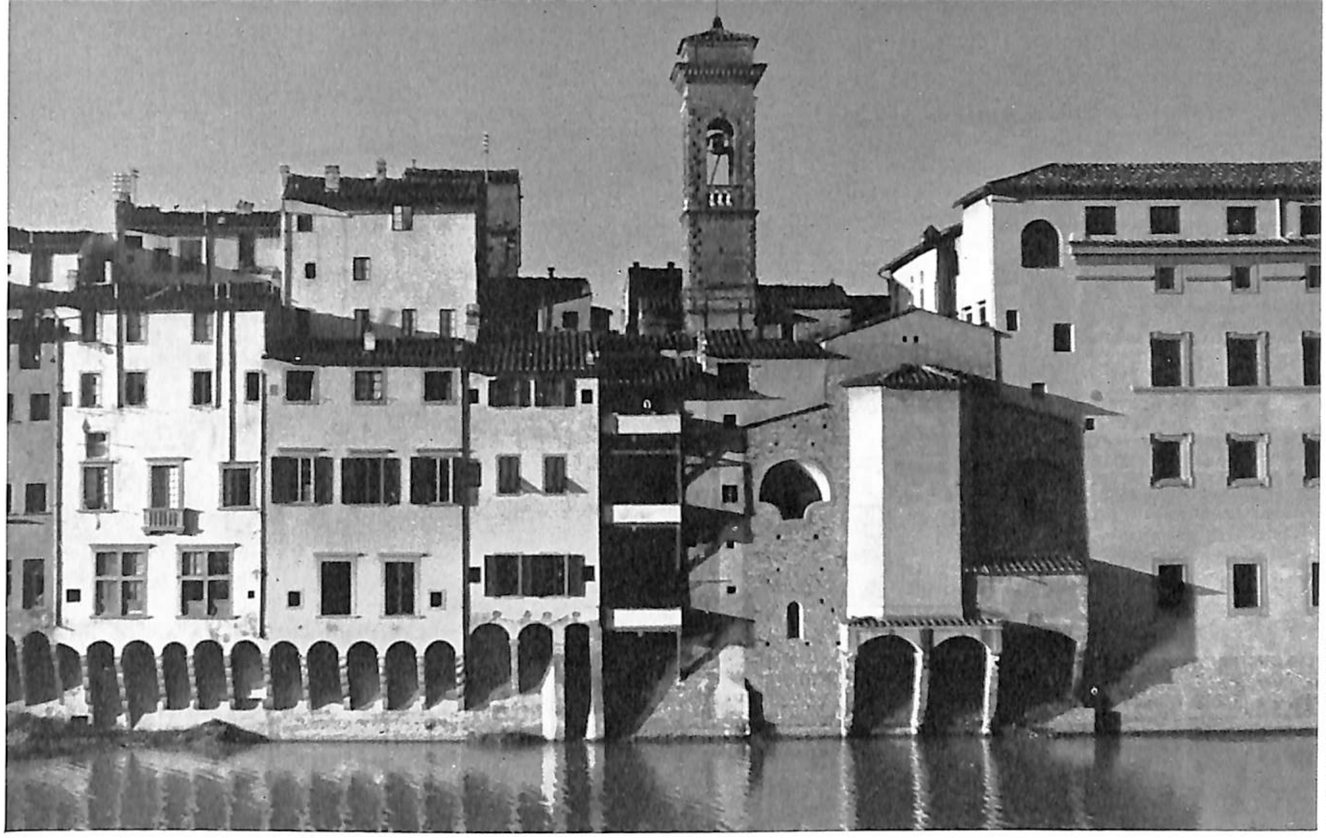
So you can see why the longer lenses are better for portraits. The "distortion" effect on a face photographed close up (in order to fill the picture area with a normal lens) is really the pictorial result of a high-proportion perspective within the depth of the head. The nose of the subject facing the camera appears abnormally large in respect to the rest because it is relatively very close. Changing the focal length does

CHILDREN in front of the camera present foreshortening problems with their informal poses, lessened at 90mm distances.

Walter G. Pollak, New York.

SUBJECTS like this can be brought closer with the medium-long lenses without the need to leave the spectator's seat.

Jay Risling, San Francisco.



SHOOTING straight across the Arno River in Florence, the photographer selected the 90mm lens to include only what was desired.

George Daniell, New York.

not in itself alter the perspective. But it makes it easier to change the viewpoint which does affect perspective. Thus it is clear how important focal length is in the actual manipulation of the image. Changing from a 50mm to a 90mm lens permits us to fill the picture area with the same size head but at a greater distance. The subject now looks more natural, because its various parts have been brought closer together in scale, approximating real-life proportion.

shallow depth of field

Another characteristic of the longer lenses is the more shallow depth of field, usually considered a limitation but sometimes representing a distinct advantage, especially in a certain type of portraiture. For example, the eyes ultra-sharp and the rest just slightly soft—shooting wide open with the 85mm Summarex or 90mm Elmar—will give the effect that is often seen in formal or semi-formal studio work.

close-up advantages

When you begin to specialize with the camera, you will find more and more specific advantages with each lens type. In close-up or macrophotography, for example, sufficient clearance between camera and subject is difficult to achieve with the normal lenses. Space is needed, not only for manipulation of objects but for maximum exercise of the lighting arrangement. Longer lenses, used with the Bellows Focusing Device and Visoflex, allow more working room. And there are the additional pictorial advantages of less foreshortening (a more compressed perspective), and less background included as a result of the narrower field.

speed versus depth

Finally, we have a further choice when using the longer lenses for the Leica. When speed is the more important consideration, the 85mm Summarex f/1.5 is the choice. When low cost, light weight and the advantage of being able to stop down to f/32 are desirable, the 90mm Elmar f/4 lenses serve better. M-3 owners may prefer the 90mm Elmar in collapsible mount which fits into the Eveready case while on the camera. The Summarex is a prize lens for those who work in color, especially for theatrical and circus shots in existing light, or for "available light" portraits, street scenes, or closely cropped landscapes.

From the illustrative examples on these pages you may get a good idea of how the medium-long focal length lenses will fit into your own needs. In our next issue, we will discuss the place of the 125mm and 135mm long focus lenses in the Leica System.

MACROPHOTOGRAPHY requires room for lights and subject manipulation. Longer lenses offer longer working distances.

David B. Eisendrath, Jr., Brooklyn.

an introduction to film sensitometry

Hugo Emanuel

here are the basic "whys" of emulsion performance

This is the first of two articles on an important aspect of the science of photography. In "everyday" language, it answers the practical questions that arise about the behavior of the many new films on the market.
Part II will appear in our next issue.

When someone mentions a "characteristic curve," a sensitometrist is the one man in the crowd whose mind is on toe and shoulder rather than somewhere in between. Not all of us become this specialized, but a basic grasp of sensitometry does help us to understand why various films perform as they do.

Recently, several new photographic films have appeared. They feature improved speed, resolution, graininess, color rendition, and latitude. Discussion of these films often refers to characteristic curves, gamma, maximum density, toe of the curve, and other terms which mystify many photographers. These terms belong to the science of sensitometry—the science of measuring the sensitivity of photographic materials.

the characteristic curve

A film's response to exposure and development is easily shown by a *characteristic curve.* This curve is variously called a *sensitometric curve, D log E curve* (density versus logarithm of exposure), or an *H. and D. curve* after Hurter and Driffield, who originated its use.

Hurter and Driffield chose density and the logarithm of exposure as the units of measurement to be used in plotting the characteristic curve.

The density of an area on a developed film expresses its ability to stop the passage of light. The fraction of light which the film allows to pass through is called its *transmission.* Conversely, its light-stopping property is the reciprocal of transmission, called *opacity.* Opacity is measured in terms of density, which is the logarithm of opacity. Figure 1 illustrates this relationship. On the left, you see a layer of film which transmits 1/10 of the light striking it. If you place another such layer below the first one, the second layer transmits 1/10 of the remaining light, or 1/100 of the original light. In the same manner, adding a third layer will cut the light to 1/1000 of the original.

So, you see that doubling the layers of film does *not* double the opacity. In this particular case, it increases it tenfold. However, we find that density, the logarithm of opacity, does double when the layers double. So, we express the light-stopping ability of film in the convenient units of density. And, since density represents a logarithmic relationship, it is most convenient to use with it the logarithm of the exposure (log E) when plotting the characteristic curve.

plotting the curve

To obtain such a curve, we give a strip of film a series of carefully controlled exposures in an instrument called a *sensitometer.* The exposure is usually measured in meter-candle-seconds (mcs)—(the amount of light falling on a film when it is exposed for one second to a light of one candle power located one meter from the film).

We then give the exposed film a standard development. This produces a *gray scale* consisting of a series of steps ranging in density from light to dark which represent densities found in an ordinary negative.

We measure the density of each step with another instrument called a *densitometer.* Each density is plotted on a graph against the logarithm of the exposure which produced that particular density. A smooth line drawn through the plotted points forms the characteristic curve (Fig. 2).

Starting near the lower left corner of the graph, you see that the density does not increase immediately with increasing exposure. It stays constant for a short time. This is due to the inertia of the film. Film must get a certain minimum exposure, called *threshold exposure,* before density begins to build up. Less than this minimum exposure has no effect on the film. The density shown below the threshold exposure is film-base density and fog. It would be there even if the film were developed without being exposed at all. The lowest density on the negative is called the *minimum density* or D min.

An increase in exposure beyond the threshold causes the line to curve upward, indicating a corre-

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HUGO EMANUEL *is an expert at putting technical information into understandable words, having written and edited a great many papers on photography.*

ORIGINAL LIGHT	TRANSMISSION	OPACITY (1/T)	DENSITY (LOG OF OPACITY)
1st LAYER	1/10	10	1
1/10 OF ORIGINAL LIGHT			
2nd LAYER	1/100	100	2
1/100 OF ORIGINAL LIGHT			
3rd LAYER	1/1000	1000	3
1/1000 OF ORIGINAL LIGHT			

FIG. 1—RELATIONSHIP BETWEEN TRANSMISSION, OPACITY, AND DENSITY

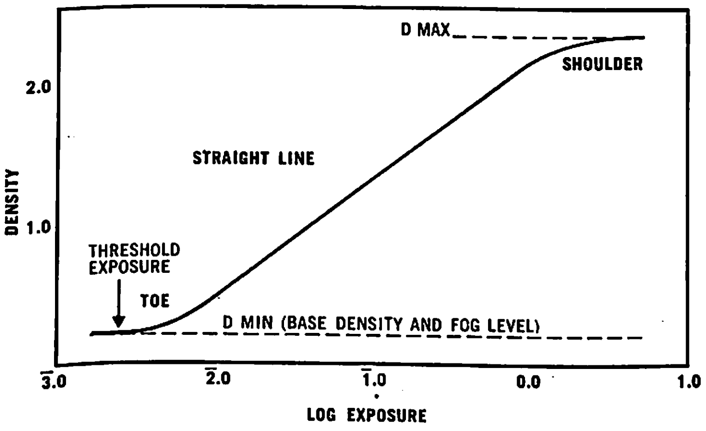


FIG. 2—THE CHARACTERISTIC CURVE

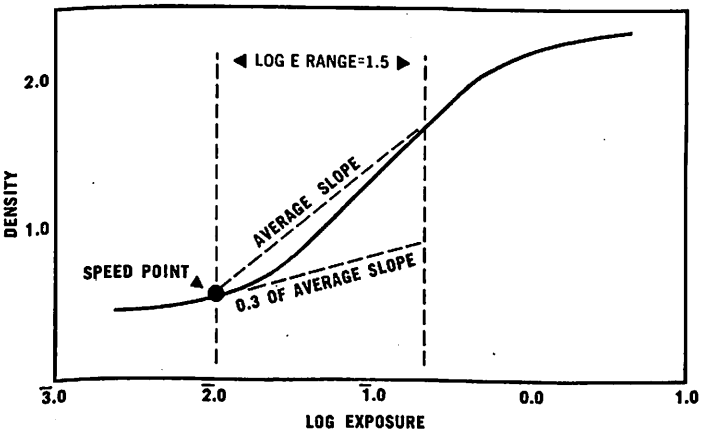


FIG. 3—ASA SPEED DETERMINATION

sponding increase in density. This curved portion represents the minimum exposure which will produce a usable image. It is called the *toe* of the curve.

Beyond the toe, the curve becomes a diagonal straight line for quite a distance. This is called the *straight-line portion* of the characteristic curve. Its constant slope shows that density increase is directly proportional to the increase in exposure.

Finally, with greater exposure, the curve reaches the *shoulder*, where it gradually levels off again. This shows that the density has reached its highest value, called the *maximum density* or D max. And no amount of exposure can make the negative more dense.

Many properties of a photographic film, such as speed, gamma, and latitude, are measured and analyzed with the aid of its characteristic curve.

film speed

The speed of a film is a measure of its inherent sensitivity to light. It is based on the minimum exposure which will produce an image of good quality. The American Standards Association (ASA) has a method for determining film speed. It is based on the exposure at the point on the toe of the characteristic curve where the slope is 0.3 of the average slope over a log E range of 1.5 (Fig. 3). This point represents the lowest exposure which will produce a negative from which an excellent print can be made. It is called the *speed point*. The reciprocal of the exposure at this point represents the film speed. (The reciprocal of a number is found by dividing the number into 1).

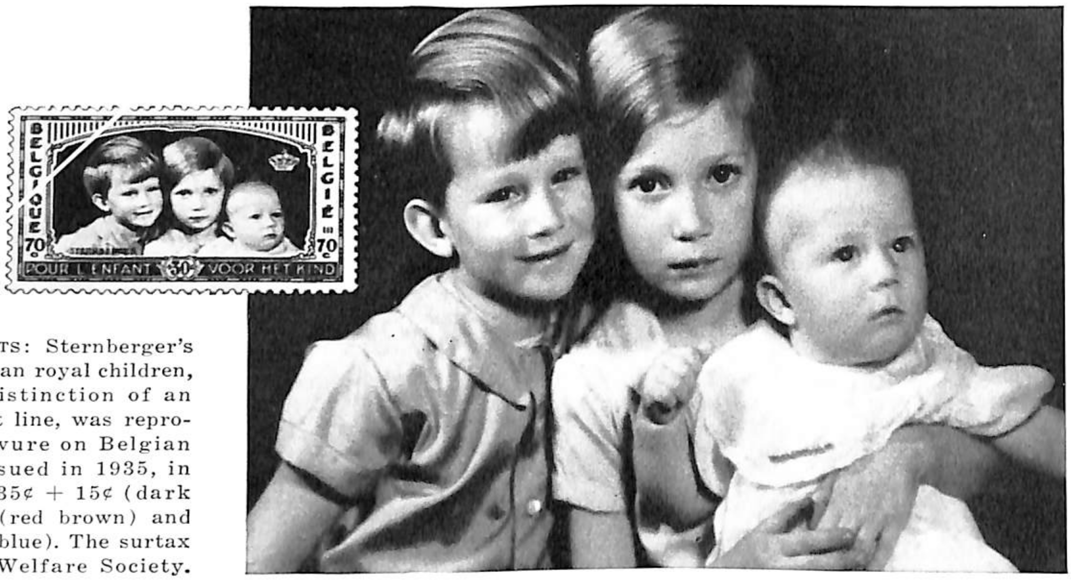
If camera exposures were based directly on film speeds, the danger of underexposure would always be present. By taking advantage of the wide exposure latitude of most films, you can use exposures which are greater than the minimum, and boost your chances of making good pictures under all circumstances. This is exactly what ASA exposure indexes do. Film speed is divided by 4, and the resulting number, used for determining camera exposure, is called the *exposure index* of the film. For convenience, the index is rounded off to the nearest number on a scale in which the numbers differ by a factor of approximately 1.25 (such as 40, 50, 64, 80, 100, 125, etc.). Exposure meters and tables are calibrated so that with the correct exposure index, there is a safety factor of 2.5 times the minimum exposure.

In Figure 3, the log E value at the point where the slope is 0.3 of the average slope, is $\bar{2}.0$. This represents an exposure of 1/100 meter-candle-second. The film speed is the reciprocal of the exposure, or 100. Dividing the speed by 4, we find that the film has an exposure index of 25.

Marcel Sternberger - recorder of great faces

Ilse Naumann

For more than twenty years, a Leica and a 90mm lens were Dr. Sternberger's principal equipment in making his memorable portraits of famous people the world over.


BELGIQUE
70c
BELGIË
70c
POUR L'ENFANT 30c VOOR HET KIND

NOTE TO PHILATELISTS: Sternberger's portrait of the Belgian royal children, with the unique distinction of an accompanying credit line, was reproduced in photogravure on Belgian postage stamps issued in 1935, in denominations of 35¢ + 15¢ (dark green), 70¢ + 30¢ (red brown) and 1.75fr. + 50¢ (dark blue). The surtax was for the Child Welfare Society.

PRINCE BAUDOUIN, Princess Josephine and Prince Albert, of Belgium, when photographed by Marcel Sternberger in 1935.

Late last year Dr. Marcel Sternberger died in an automobile accident. That accident cut short a distinguished 22-year career in portrait photography during which time some of the world's most famous personalities faced his lens. A Leica, a 90mm lens, and Sternberger's understanding of his subjects produced his penetrating portraits.

Marcel Sternberger earned fame as one of the world's top portrait photographers in a roundabout way and rather against his will. Born in Hungary in 1904, he grew up in an atmosphere of emphasis on purely intellectual, as opposed to practical careers.

Ambition kept Sternberger hard at work to improve his articles. He felt that illustrations would add to the impact of his stories on social, sporting and historical events. He experimented with pencil and brush, then turned to photography "which, in a mere fraction of a second, can capture mood and movement better and faster than older art forms..." Gradually he became more and more fascinated by the "psychologically sound interpretation of the human face..." and used his many friends for models.

Once Sternberger was asked why he did not make photography his profession since his major interests now centered around it. He looked on the suggestion almost as an insult. To do this would have been, to him, a downward step on the social and professional scale. As luck would have it, this discussion took place in Belgium in the presence of Dr. Camille Huysmans, mayor of Antwerp. Huysmans pressed the point and succeeded in winning a conditional promise from Sternberger: if an outstanding personality would give him a paying commission, only then would he give in.

first professional portraiture

Mayor Huysmans borrowed several of Sternberger's portraits, and left. Barely a week later Sternberger was invited to a sitting by King Leopold III of the Belgians! Dr. Huysmans, a former tutor of the young monarch, had drawn the attention of the Royal Family to Sternberger's unusual work. Sternberger was then appointed "Private Photographer to the Belgian Royal Family."

With his professional career so well launched, Sternberger could now pursue his new vocation wholeheartedly. With new psychological insight and photographic technique he began to build his remark-

salon standards for color slides / Helen C. Manzer

how to stay in the "acceptance" stack

The introduction of color film for small cameras opened a new era for amateur photography. Through color slides, greater satisfaction and fulfillment came to millions of amateur photographers.

The desire to display one's capabilities—a trait common to most of us—soon asserted itself among active slide makers. At first casual groups were formed; soon more formally organized clubs arose, with programs devoted to viewing, discussing, and criticizing members' slides.

Color slide enthusiasts began to consider exhibiting a valuable means of improvement for without standards, improvement was likely to be haphazard and difficult. "Acceptance" in an exhibition came to mean a superior slide; "rejection" meant a slide that lacked certain qualities. Photographers who learned the principles of good slide making soon "ran away" with the honors and so sought "other worlds to conquer." Many found stimulation in competitions conducted by the Photographic Society of America. Others found challenge in international exhibits.

good color slides

Several characteristics are common to good slides, but their total complex effect makes it hard to rank one before the other in importance. When a slide is considered outstanding, it is often hard to say why. And it is just about as hard to say why another particular slide is rejected. Nevertheless, we can include among the characteristics of a good color slide: technical quality, subject matter, design and arrangement, subtlety, mood, and emotional impact.

Technical quality is fundamental to a good slide. It involves correct exposure, selection of lens, camera operation, and lighting. One way to cultivate a sensitivity to technical quality is through consistent, friendly criticism of slides by persons already successful in color slide photography; another is to attend showings of accepted slides.

subject matter

Within the limits of good taste, almost any subject matter is acceptable. Judges are, of course, human and often have personal preferences and even prejudices similar to those of average persons. Slides which portray people and their activities are more likely to have an intrinsic appeal to judges than slides which present inanimate objects or geometrical patterns, all other qualities being equal. But the other qualities are seldom equal. Consequently, an inferior portrait or *genre* slide might be rejected and a superbly executed still life or abstraction accepted.

In addition to quality of the individual slide, judges look for variety. Subject matter which is "different" or familiar subjects treated in an unusual way have an excellent chance of acceptance. The problem is not to find material which has never been photographed before, but to cultivate powers of observation and insight. Being "picture-minded," will stimulate and strengthen powers of originality.

design and arrangement

This characteristic refers to the relative location of masses, color values, lines or center of major interest within the picture space. There is, of course, nothing rigid about the principles of design, but improvement is marked in many photographers after the basic principles of design and arrangement have been grasped. For instance, many slide makers include too much material in their pictures, overlooking the importance of selectivity and simplicity. This simplicity can be stated by one idea in the picture—to tell one story. In flower photography, for example, a close-up study of a few blossoms is often more effective than a picture of the entire bed.

subtlety: mood

Many slides are rejected because subjects are treated in a commonplace or obvious way. The success of a slide is often due to a quality of subtlety and there are many ways of being subtle: an indirect approach to a small part of something rather than the whole object; an implication rather than a direct statement, and so forth. Leaving much to the imagination, the symbol often makes a stronger picture than the actual object or situation recorded.

Mood, closely related to subtlety, is also hard to define. Although mood involves elements in the picture itself, it is found predominantly in the overall effect produced by the picture upon the observer. Possibilities of controlling mood lie in choice of exposure; lighter tone values usually being associated with lighter moods; more sombre moods usually being suggested by dark tones and color values.

Mood is often associated with transitory and unusual lighting effects. Fog and mist, for instance, by hiding some of the scene, can transform an otherwise indifferent scene into a provocative visual experience. During early morning and late evening unusual lighting effects frequently provide a variety of moods for landscape work.

emotional impact

Emotional impact is one of the total, integrated effects of a picture upon the observer. In achieving emotional impact in a slide, all of the characteristics already discussed do not operate at top strength in every case, but in top-ranking slides they do.

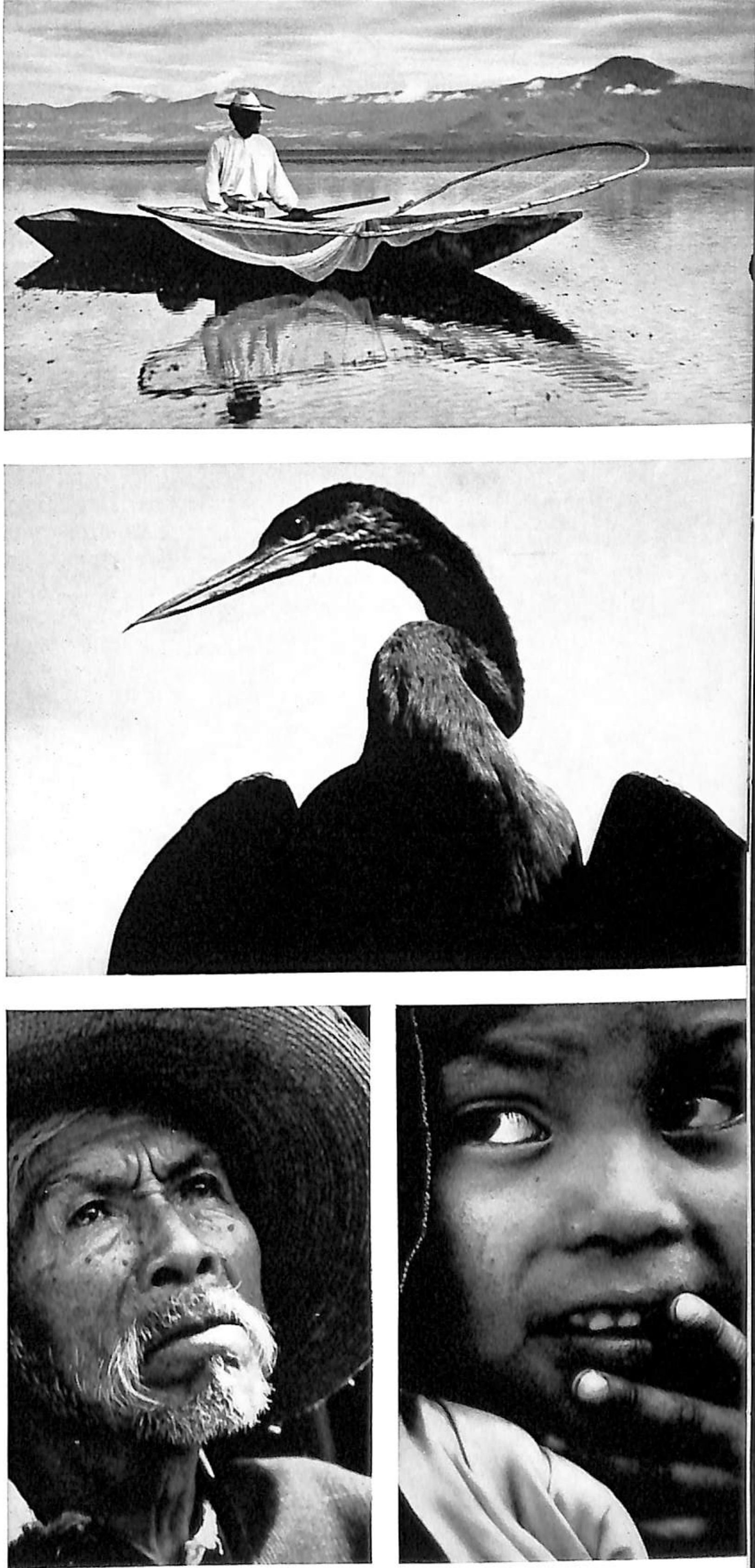
Emotional impact is also related to subject matter. Contrast the emotional impact of the calm of a pastoral landscape with that of the turbulence of a storm in high mountains! Impact is inherent in photographs that suggest movement; the runner as he wins the race, the speeding car as it makes a turn. There is also strong emotional impact in photographs that show the peak of an action: the basketball player at the top of his jump, the ballet dancer in mid-air. Even the blurred image is an effective means for expressing movement, for emotional impact.

The appeal of many very strong pictures extends beyond vision to the association of our other senses as well. We enjoy the visual experience of a superb winter landscape because we also "feel" the cold of the snow drifts and the shimmering ice, we "hear" the crunch and squeak of the snow under our heels.

A top-ranking slide often presents to us a crucial situation in experience or human character. We are looking through a window upon life; we are participating in an experience. The slide's emotional impact is, to a degree, that of actual participation in one of life's episodes. This directness and immediacy of experience is one of the most powerful effects of color photography.

outcome: individuality

The aim of anyone who uses a camera should be the development of his own interests and point of view, his own philosophy and standards of picture-making. Toward the attainment of these goals contests and exhibitions can be of real value, but they should be used only as ways to cultivate insight and critical judgment. The photographer should make pictures he likes and pictures he enjoys making. In avoiding the imitative and in not being influenced unduly by the work of others, his individuality will reach full independence; he will recognize with deepening satisfaction the *unique* contribution he can make to amateur photography.



REPRODUCTIONS from color slides by the author, to illustrate a few of the keys to salon success—from the top: "Patzcuaro Fisherman," taken in early morning, illustrates power of subtle light and color. "Female Anhinga" of the Florida Everglades, shot with 400mm Telyt lens, is stark but graceful in form and outline. "Face of Time," shot in soft sunlight with 135mm Hektor lens, and "Pedra," also made with this lens, are primarily of human interest.

take your camera to the circus

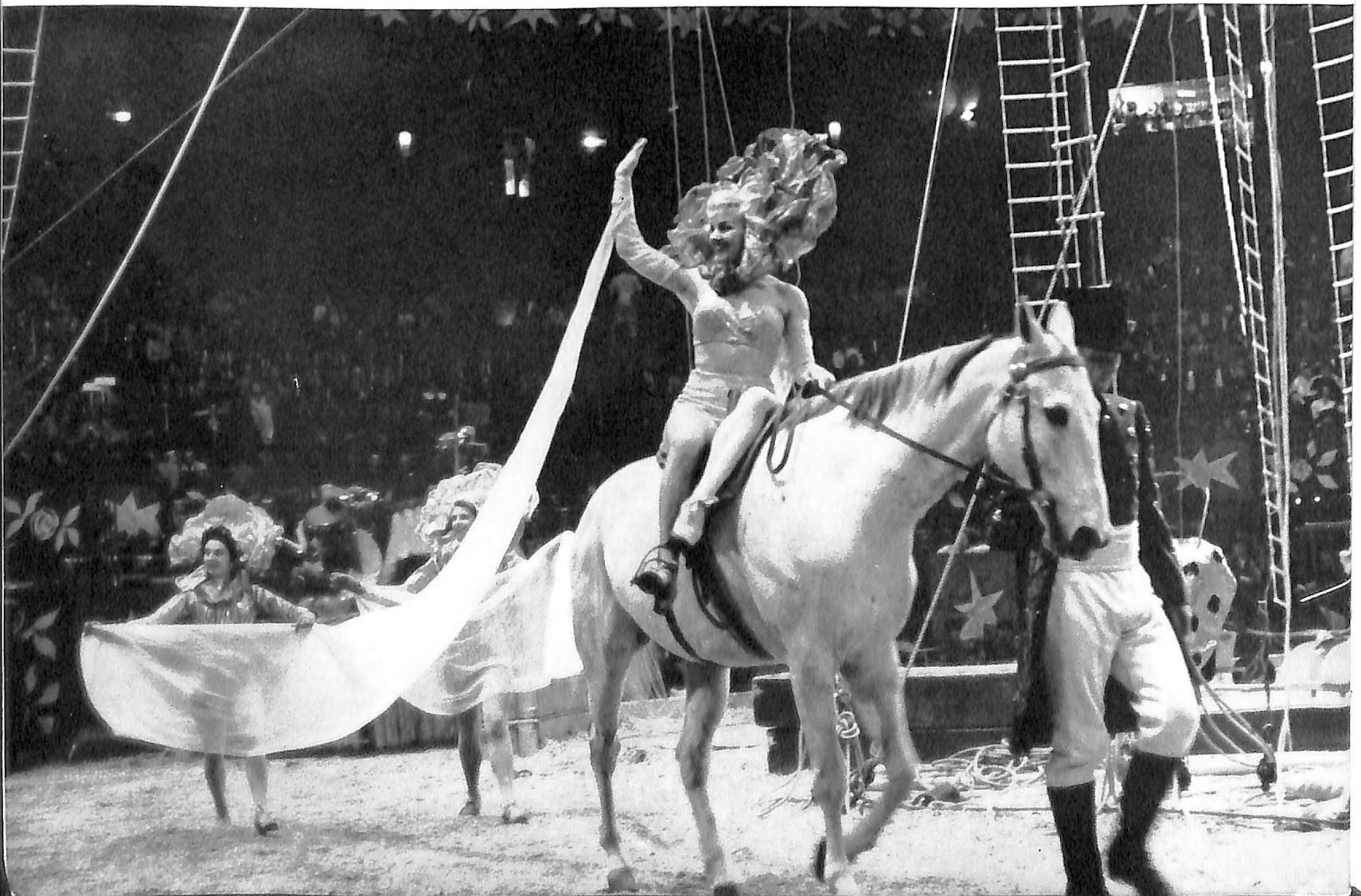
photographs by Eugene Anderegg

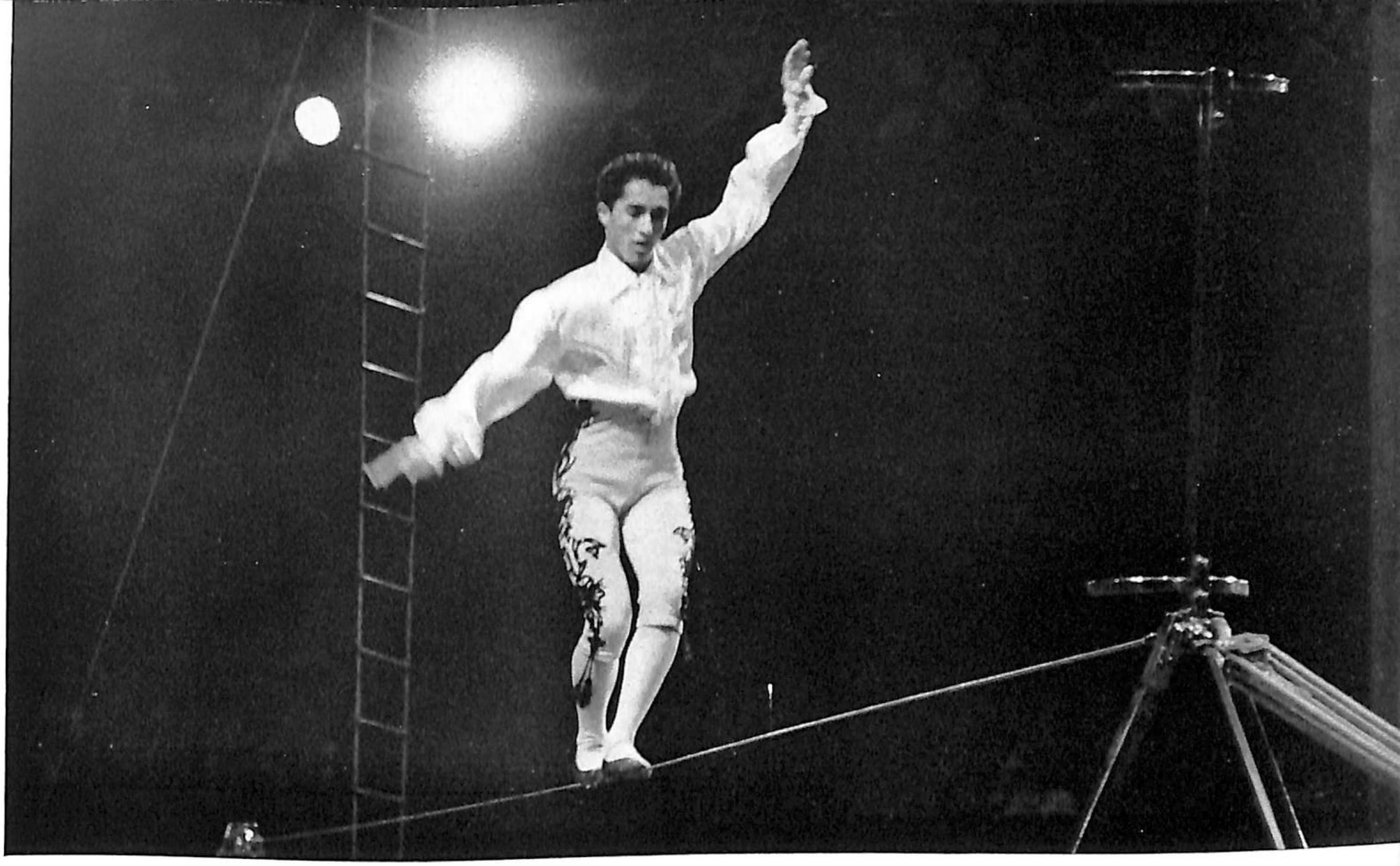
the "big top" will always live in pictures

These pictures, (made with the 35mm Elmar, 50mm Summicron and 135mm Hektor lenses on a Leica M-3), are only hints of the tremendous photographic possibilities offered to you when the circus comes to town. This year, you are expected to do better than previously as photographer under the big top. The recent curtailments of this age-old form of entertainment, caused by labor-management problems, threaten to put a new rarity on the circus scene which should emphasize photography's aspect of preservation more than any other. Knowing that a never-to-be duplicated experience can be flashed back in an instant through the medium of the photograph should make you value the camera more personally.

When there's a sense of urgency about getting the picture, you are compelled to photograph with much more originality than if you just "look around for pictures." In the latter case, it's easy to lose contact with the actual event itself, as well as with your own personal ideas. The upshot is that you never shoot until you see the whites and blacks of a familiar scene. And if the scene is familiar, you can be sure it's not very original!

So, if you can be really excited about the circus, you can be stimulated to transfer this excitement to film. Since that's easier said than done, we have drawn up a short list of suggestions to give you a boost before you go. These are not the usual kind of hints obtainable from most photo literature—basic techniques that apply to camera operation—but ideas calculated to inspire you specifically to take your camera to the circus.





tips on shooting the circus

1. Review the program of events. Anticipating what will happen always yields the most rewarding pictures.
2. Take along a long-focus or Telyt lens. Regardless of where you sit, you will want to bring some subjects up close.
3. Use high-speed film. Don't hesitate to use wide apertures when they are required for fast shutter speeds. At great distances depth of field will be great enough even with the lens wide open.
4. Remember, although the peak of action may be the most tempting moment to shoot, new and interesting results are obtained by capturing the performer in the flux of motion.
5. The drama of the circus is exciting, but don't ignore the drama of the spectators watching.
6. Take *your own* pictures – as things look to *you*. Don't just shoot when the picture strikes a familiar look – chances are you're recognizing a photograph you saw before!
7. Boost the speed of your high-speed film even higher by special development techniques. For suggestions on how to do this see *Leica Photography*, Summer 1956, pages 11-14; this issue, pages 12-14. For "drugstore" processing of high-speed film, typical exposure might be 1/200 second at f/4. With Type A Kodachrome, 1/25 at f/2 might be required.

focusing on . . .

improved KB-21. Within the next few weeks, Adox KB-21 will be available in an improved form. Recent advances in film technology have given this fast, fine-grain emulsion more contrast, greater exposure and development latitude and increased acutance. The basis for the increased brilliance and sharpness of the new KB-21 is an improved antihalation coating which minimizes irradiation of light within the emulsion. Price of the new film will remain the same —$1.15 for a 36-exposure cartridge.

new photojournalism book. "Photojournalism, Pictures For Magazines and Newspapers," by Arthur Rothstein (Amphoto, $5.95) is a rare book—at once comprehensive, authoritative, and highly readable. Mr. Rothstein has been with *Look* magazine for 16 years as staff photographer and Technical Director of photographic operations. He also gained fame for his photographic work with the Farm Security Administration during the 1930's.

The book covers every phase of photojournalism: single pictures, picture stories, photo essays, and many others. It shows how pictures are chosen for newspaper and magazine use, how picture and art editors function in bringing a photographic idea into print, and the role of layout in visual communication. Final chapters cover equipment and techniques, darkroom procedures and the ethical and legal considerations of the profession.

The author's ideas are illustrated with more than 200 photographs. Consistent with the subject of the book, pictures describe the "how" of many of the editorial and darkroom jobs involved.

exhibition. The work of Arthur Rothstein, whose new book is reviewed above, is the subject of a current exhibition prepared by George Eastman House. The exhibit, about 100 photographs, will appear in museums and schools throughout the country—watch for announcements in your local papers.

Another George Eastman House exhibition now on tour shows the work of Alfred Eisenstaedt. From April 8 to 28, this show may be seen at the Kodak display area in Grand Central Terminal in New York City.

Leica-Meter 3. The well-known Leica-Meter is now available in an improved version—the Leica-Meter 3. Essentially the same size as the previous Leica-Meter 2, the new meter features a redesigned dial which provides exposure index settings up to 1000 ASA as well as a DIN speed scale. Only the practical exposure range (apertures from f/1.4 to f/22) is revealed by the meter dial, making operation simpler and easier by concealing unnecessary figures. There is also a setting for the average exposure time of movie cameras operating at 16-frames-per-second.

Another feature, for those of you who may own cameras calibrated for the "light value" exposure system, is a series of settings for this system. Correlation between light value settings and conventional settings is automatic and continuous; as you set a conventional lens-and-aperture reading, the light value setting appears on the outer scale of the meter dial. Price of the new meter is the same as that of the previous Leica-Meter 2—$18.00 without the Booster Cell, $24.00 with the Cell.

color courses. Mrs. Helen Manzer, author of the article on color slide salons, is one of the world's leading exhibitors, a Fellow of the Photographic Society of America and an Associate of the Royal Photographic Society. She is also a teacher of photography. Besides courses in black-and-white and color photography at the Brooklyn (N. Y.) Central Y.M.C.A., she conducts special color slide courses which offer photographers a good chance to combine a vacation with expert photographic guidance.

On California's Monterey Peninsula, Mrs. Manzer will hold two courses: First Group from June 24 to July 5, Second Group from July 8 to July 19. Her assistant will be Roland A. Wilson, artist. You can get information on the West Coast courses from Margaret E. Wilson, Box 68, Harper Canyon Road, Salinas, Calif.

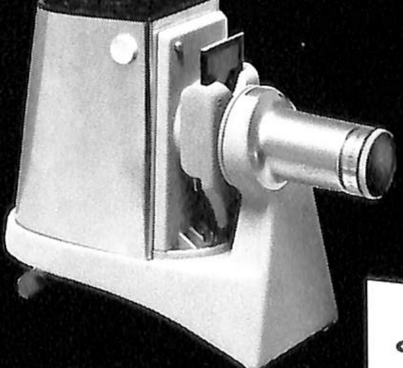
Mrs. Manzer's East Coast courses offer a chance to photograph New England's colorful countryside around Orford, New Hampshire. The New Hampshire sessions are: First Course, July 29 to August 9, Second Course, August 12 to August 23. A special Third Course featuring Fall foliage is from September 30 to October 4. Her assistant in these courses will be Richard B. Pomeroy, APSA. Information on the New Hampshire series is available from Mrs. Richard B. Pomeroy, 18 Fox Meadow Road, Scarsdale, N. Y. (after June 20: Orford, N. H.).

NO MORE "POPPING"– FOCUS ONCE! with the new LEITZ **PRADO** SM

This latest Leitz PRADO slide projector features a unique "anti-pop" device that puts an end to in-and-out-of-focus slide shows. Cardboard-mounted transparencies no longer buckle annoyingly and now stay in focus through a continuous slide show. The PRADO SM takes any type of 2x2 slide mount. Refocusing is only necessary when cardboard- and glass-mounted slides are intermixed.

With 300 watts of light projected through high-output aspheric condensers, the brilliance of screen images from the PRADO exceeds that of other units using greater wattage. A two-channel blower keeps both the PRADO SM and the slide cool. Handsome carrying case which also accommodates accessories is available.

Available with a choice of interchangeable lenses: 85mm, 100mm or 120mm Hektor f/2.5, coated precision optics specially designed for color projection. Priced from $120 to $147.



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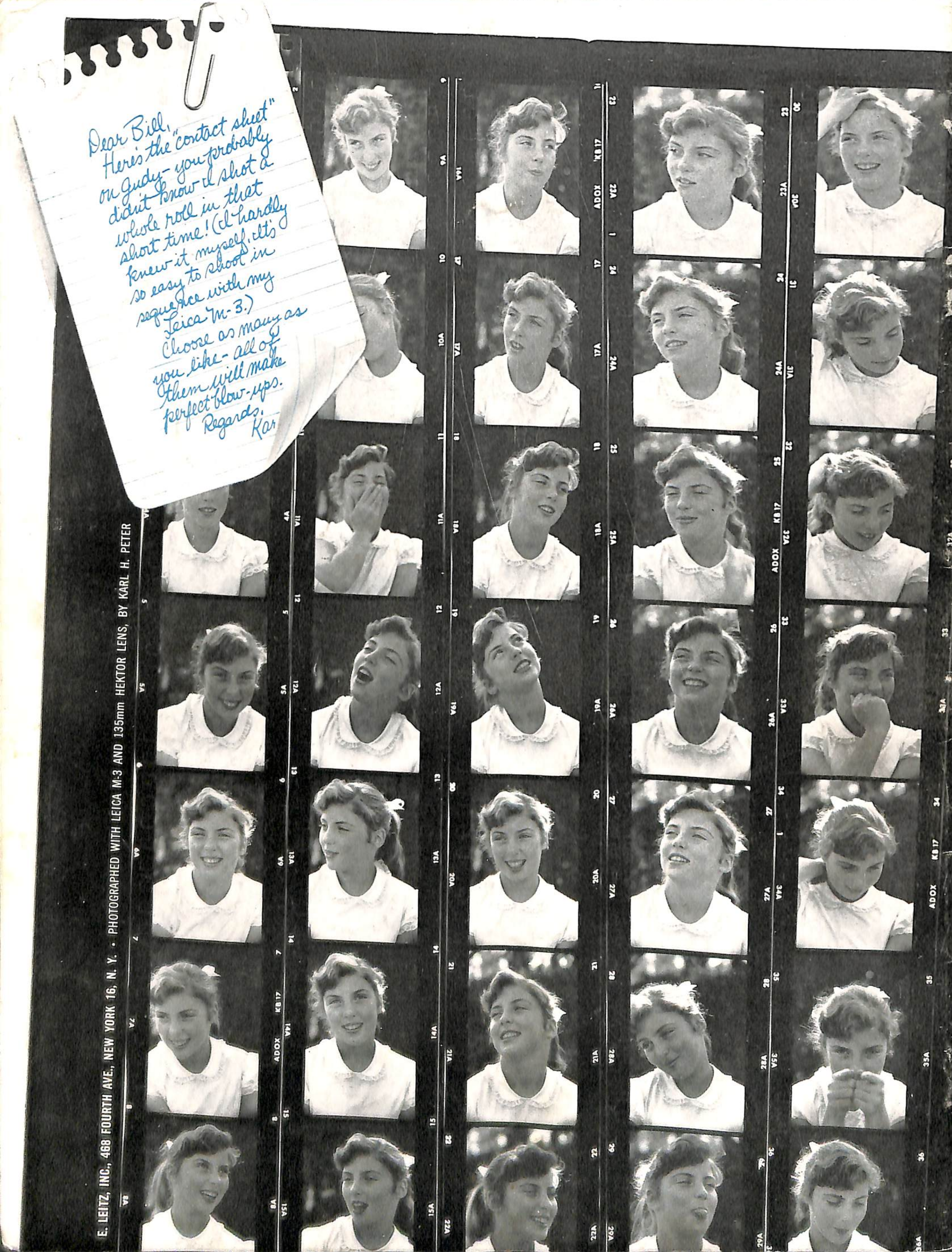

Dear Bill,
Here's the "contact sheet" on Judy - you probably didn't know I shot a whole roll in that short time! (I hardly knew it myself, it's so easy to shoot in sequence with my Leica M-3.)
Choose as many as you like - all of them will make perfect blow-ups.
Regards,
Kar

E. LEITZ, INC., 468 FOURTH AVE., NEW YORK 16, N. Y. • PHOTOGRAPHED WITH LEICA M-3 AND 135mm HEKTOR LENS, BY KARL H. PETER